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THIRD FIVE YEAR PLAN

A DRAFT OUTLINE

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Explanatory Note

The expressions 'lakh' and 'crore' signify 100,000 and 10,000,000 respectively.

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A DRAFT OUTLINE

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INTRODUCTION

THIS DRAFT OUTLINE brings together the results of studies on the Third Five Year Plan which have been in progress over the past 18 months. These studies have drawn upon the reports of panels and working groups set up at the Centre by the Planning Commission and the Ministries as well as those in the States. Contributions have been received on many aspects from a large number of organisations in the country. The

Errata

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26	12	1	distinction	distribution
30	20	1	about	above
31	23	12	September and October	September—November
34	35	1	programme	programmes
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INTRODUCTION

THIS DRAFT OUTLINE brings together the results of studies on the Third Five Year Plan which have been in progress over the past 18 months. These studies have drawn upon the reports of panels and working groups set up at the Centre by the Planning Commission and the Ministries as well as those in the States. Contributions have been received on many aspects from a large number of organisations in the country. The Planning Commission has also been greatly assisted by the widespread interest which has been evinced at all levels of national life.

The broad framework of the Plan, which is presented in this Outline, was considered by the National Development Council in March 1960, and its major features have also been reviewed by the Cabinet. The Outline keeps in view both our basic social and economic objectives and the perspective of growth over the next 15 years.

Its purpose is two fold. It is intended firstly to serve as a basis for consideration by Parliament and State Legislatures and all sections of public opinion of the objectives and priorities of the Third Plan and the targets to be achieved in different fields of development and also to give an indication of the magnitude of the national effort needed in the coming years. In the second place, the Outline is intended to assist the Central Ministries and State Governments and various organisations in the country in working out their detailed proposals for the final report on the Third Plan to be submitted to Parliament early next year.

All estimates in the Outline are necessarily tentative and will be reviewed in the next few months in the light of further discussions and comments.

The Third Five Year Plan represents a crucial stage in the fulfilment of our basic social and economic objectives. The goals set out in the Outline are within the capacity of the nation and are a measure of the advance that has to be achieved in the five years of the Third Plan.

June 20, 1960

V. T. KRISHNAMACHARI
Deputy Chairman,
Planning Commission.

CHAPTER I

SOCIAL AND ECONOMIC GROWTH: APPROACH AND PERSPECTIVE

1. SOCIAL OBJECTIVES IN PLANNING

OVER the past decade, through the Five Year Plans, India has endeavoured to harness natural resources and the energies of the people to the tasks of national development. From the beginning, it has been stressed that the objective of planned development is not only to increase production and attain higher levels of living, but also to secure a social and economic order based on the values of freedom and democracy in which "justice, social, economic and political, shall inform all the institutions of the national life". It is the primary aim of the Plans to provide the basic necessities to all persons within the community and at the same time, to emphasise the place of human values in economic and social development. Long before independence these purposes were expressed through the movement for national freedom and guided the thinking of those who urged the need for planned development.

2. In December 1954, Parliament declared that the broad objective of economic policy should be to achieve the "socialist pattern of society". Accordingly, the basic criterion in determining social policies and the lines of economic advance should be, not private profit or the interests of a few, but the good of the community as a whole. The existing social and economic institutions have, therefore, to be judged in relation to their role in national development. To the extent they do not fulfil the social purposes in view, they have to be transformed or replaced. In reconstructing social and economic institutions, a large responsibility rests with the State on behalf of the entire community. The State has to plan its own investments and to influence and regulate economic activity within the private sector so as to ensure the coordinated development of all the available resources. Through the policies it pursues, it has to safeguard the interests of the weaker sections of the community and enable them as speedily as possible to come up to the level of the rest. A socialist pattern of society has to be based on increased

production realised through the use of modern science and technology and on equitable distribution of income and wealth. The problems of production cannot be viewed in isolation from wider social considerations, for the manner in which productive activity is organised itself determines to an extent the relative distribution of incomes and the benefits reaching different sections of the community. Programmes of investment under public ownership or control, whether these relate to economic and social over-heads or to the development of agriculture and industry, are therefore of crucial significance not only for their direct effects, but also in determining the directions of future economic and social advance.

3. These considerations follow from the Directive Principles in the Constitution and were broadly embodied in the First Plan which stated that the main objective of Planning was to create conditions in which living standards are reasonably high and all citizens, men and women, are given full and equal opportunity for growth and service. The Plan, therefore, sought to provide for a balanced emphasis on increase in production and employment and the attainment of economic equality and social justice. The Second Plan also stressed that the pattern of development and the lines along which economic activity is directed should be related from the start to the basic objectives which the society has in view. In particular, the benefits of economic development should accrue more to the relatively less privileged classes of society, and there should be a progressive reduction in the concentration of incomes, wealth and economic power.

4. The socialist pattern of society envisaged in India's plans does not imply that all economic initiative must rest with the State. Indeed, it assigns to private enterprise an important role in national development. This is based on the assumption that the private sector accepts the broad discipline and values implied in the national plan and will function in unison with the public sector. In thinking of the private sector, it is necessary to take into consideration not only the large organised units but also—and principally—the millions of farmers, artisans, traders and small industrialists who constitute the bulk of the private sector. In any objective assessment private enterprise should not be equated with large units in industry and trade although, for technological and other reasons, such units have considerable significance in the development of the economy. The socialist pattern places special emphasis on the needs of the small producers and envisages a rapidly growing co-operative sector, in particular, in respect of agriculture, medium and small scale industry, trade and distribution and many fields of

social services. Co-operative organisations have the merit of combining the advantages of individual initiative and small scale pattern with those of large scale management and organisation, and are a vital factor both for social stability and for economic growth. Along with the public sector and a private sector informed by a sense of social purpose, they constitute the foundation for the co-operative commonwealth. All enterprise, whether Government or private, has to meet the test of public interest in terms of the basic economic and social goals which the country has accepted. The public sector has a leading role in the development of the economy and is expected to grow both absolutely and relatively to the organised private sector.

5. In the short run, there may sometimes be a conflict between the economic and social objectives of developmental planning. The claims of economic and social equality and those of increased employment may have to be reconciled with the requirements of production. Experience of the working of the first two Plans suggests that on the whole the most satisfactory results are likely to be achieved by a balanced advance in all these directions. What constitutes a balance will vary according to the needs and circumstances of the economy but, given the acceptance on the part of the community of the essential values or ends to be pursued, the processes of democracy and freedom of choice should be capable of throwing up the optimum to be aimed at in a given context.

6. The Directive Principles of State Policy in the Constitution have placed before the country the objectives of securing adequate means of livelihood and the right to work, to education and to public assistance in cases of unemployment, old age, sickness and disablement and in other cases of undeserved want. They have also affirmed that for realising these goals, the ownership and control of the material resources of the country should be so distributed as best to subserve the common good and that the operation of the economic system should not result in the concentration of wealth and economic power in the hands of a few. The successive Five Year Plans which the country undertakes have to keep in view these basic considerations.

2. FACTORS IN LONG-TERM DEVELOPMENT

7. Among the aspects of retarded development to which planning has to address itself are low levels of productivity, income and living, the high proportion of the population engaged in agriculture

and the existence of large scale under-employment, the dependence on more advanced countries for equipment and technical knowledge, and inadequate rate of economic growth. These are deeply rooted economic and social problems which call for a long-range strategy for development. For a nation to lift itself from a state of poverty and enter upon the process of dynamic growth is a task that calls for a long and sustained effort. It was for this reason that in the First Plan the problem of development was visualised over a period of 25 or 30 years and the immediate five-year period was considered in this broader context.

8. Although, for certain purposes it is convenient to divide the process of development into shorter spans, in reality it forms one continuous whole in which the priorities and objectives for each period are linked with a larger perspective. Thus, both the First and the Second Plans were conceived as stages in the long-term social and economic development of the country. The First Plan presented a picture of economic growth over the 30 years between 1950-51 and 1980-81. On certain assumptions concerning the rate of growth of population, the proportion of the increase of national income which could be ploughed back into investment at each stage of development, and the return by way of additional output on the investment undertaken, it was envisaged that the level of national income in 1950-51 could be doubled by 1971-72 and that of per capita income by 1977-78. In the light of the experience gained during the First Plan, the earlier projections and assumptions were reviewed in the Second Plan, which suggested that in relation to 1950-51 the doubling of the national income might be achieved by 1967-68 and of per capita income by 1973-74. Another important objective to be achieved by the end of the fifth plan was the reduction of the proportion of the population dependent on agriculture from the present level of about 69 to 70 per cent to about 60 per cent.

9. The realisation of the targets envisaged in the Second Plan projections will depend on two sets of factors—firstly, the rate at which population grows and, secondly, the scale, pattern and intensity of the effort made in each of the next three plan periods. In respect of population, there has been a significant change since the publication of the Second Plan. A number of estimates of the likely growth of population which have been worked out on different assumptions suggests that the population is likely to increase during the next 15 years at a rate much in excess of that indicated in the Second Plan. The following table sets out the estimates of population growth prepared by the Central Statistical Organisation (CSO) which have been accepted provisionally as a working basis

for the preparation of the Third Plan along with those given in the report on the Second Plan.

(in millions)

	1951	1956	1961	1966	1971	1976
Second Plan estimates	362	384	408	434	465	500
C.S.O. estimates	362	391	431	480	528	568

The projections of the Central Statistical Organisation, which are necessarily very tentative, are based on the following view of trends of birth, death and growth rates:

(per 1000 per annum)

	1951-56	1956-61	1961-66	1966-71	1971-76
birth rate	41.7	40.7	39.6	32.9	27.3
death rate	25.9	21.6	18.2	13.9	12.6
growth rate	15.8	19.1	21.4	19.0	14.7

On these estimates, over the period 1951—76, the total increase in population may be of the order of 206 million as against 138 million assumed in the Second Plan. Corresponding to the growth of population, it is estimated that the labour force, which stood at 141 million in 1951, will increase to about 222 million by 1976. The increase in the labour force over the 15 years 1961—76 may be of the order of 60 million; of these more than two-thirds will need to be absorbed outside agriculture.

10. In an economy with low levels of income and consumption, high rates of population growth severely limit the pace of economic development. They increase the requirements of consumption and the difficulty of finding productive employment for the growing labour force. If the long-term aims concerning per capita income and the reduction in the proportion of population dependent on agriculture are to be realised, the effort by way of capital accumulation has to be substantially increased. The projections regarding birth rate trends set out above certainly assume widespread changes in attitudes and a high degree of success in the spread of family planning practices. The objective of stabilising the population has certainly to be regarded as an essential element in a strategy of development.

PATTERN AND PRIORITIES OF DEVELOPMENT

11. The projections in the Second Plan assumed that national income would increase at over 5 per cent per annum during the next three plan periods. The principal economic objective of long-term development is to secure a progressive rise in the level of

consumption per head. This rise in consumption can only be achieved through a large and continuous increase in production. In other words, development has to be so planned and organised that the economy expands rapidly and becomes self-reliant and self-generating within the shortest period possible. For achieving this aim, the following are the essential conditions:

(a) *Rate of investment.*—As was stressed in the Second Plan, the rate of investment as a proportion of the national income must be stepped up progressively. This may be illustrated from the projections in the Second Plan which envisaged increase in the rate of investment from about 7 per cent of the national income by the end of the first plan to about 11 per cent by the end of the second plan, about 14 per cent by the end of the third plan, and 16 and 17 per cent respectively by the end of the fourth and fifth plans.

(b) *Basic and heavy industries.*—Basic industries, such as steel, fuel and power and machine-building have to be established on a large enough scale as a major condition of rapid economic development. Without this condition being fulfilled the requirement of further industrialisation will not be met in adequate measure from the country's own resources, and self-sustained growth cannot be achieved. This approach has far-reaching implications specially for a country like India, which has a large population and rich resources, but also a great deal of leeway to make up over a relatively short period.

(c) *Agriculture.*—In those sectors of development in which a large measure of progress can be achieved through the fuller exploitation of the resources available within the economy, the maximum rate of development physically possible should be secured. Thus, the development of agriculture, based on the utilisation of man-power resources of the countryside and the maximum use of local resources, holds a key to the rapid economic development of the country. In the present stage of development, production of sufficient foodgrains has the highest urgency. Once the capacity to produce has been created, within a comparatively short period, it can be adapted to meet the changing needs of the community. Over a period, the aims to be achieved are the development of a diversified and intensive system of agriculture, including animal husbandry, dairying, production of meat, fish, poultry, etc.; provision of a balanced and adequate diet to the entire population; and the development of commercial crops both to meet the increasing requirements of industry and of exports.

Development of agriculture calls for extension of irrigation on a large scale as well as for increased production of chemical fertilisers.

In any long-term view, the prospects of agricultural development are intimately connected with the success achieved in:

(1) bringing about technological changes, specially the adoption of scientific agricultural practices and improved implements and other equipment;

(2) fuller utilisation of manpower resources in rural areas and the organisation of maximum local efforts; and

(3) reorganisation of the rural economy along cooperative lines, including the provision of services, credit, marketing, processing and distribution, cooperation in production and diversification of the occupational structure.

Through the community development movement and the development of cooperatives, these goals are being pursued; the effort has to be further intensified.

(d) *Social services and equality of opportunity.*—An essential aspect of long-term planning is that effective and speedy means should be devised to raise the level of productivity for the nation as a whole. It is only thus that the general level of well-being can be effectively raised. At the base of this entire effort are the various programmes of development for building up the country's human resources, specially education and health, and programmes for raising the levels of skills and technical and scientific knowledge and for scientific and technological research. With this in view, it has been proposed that free and compulsory education will be provided for all children in the age group 6—11 years during the period of the third plan. The next step will be to provide for universal education up to the age of 14 years, a goal to be fulfilled during the fourth and fifth plans.

Reference may also be made here to the programme for providing minimum amenities in the course of the third plan. These include supply of drinking water, approach roads and the village school building which may serve as a community centre and provide facilities for the village library, and roads linking each village to the nearest main road or railway station. Through these and other development programmes, undertaken with the support and participation of the people, the Plan seeks to provide basic necessities to all citizens, more especially, food, supply of drinking water, clothing, elementary education, health and sanitation, housing and, progressively also work for all.

12. *Investment requirements of the economy.*—Estimates concerning future investments are necessarily subject to a number of assumptions regarding the proportion of the current income of the community which may be devoted to capital formation, the return by way of additional output on the investment which is undertaken, the extent of external assistance available and other relevant factors. Preliminary studies undertaken in the Planning Commission suggest broadly that if national income is to increase from about Rs. 13,000 crores in 1960-61 (at 1958-59 prices) to about Rs. 17,000 crores in 1965-66, net investment of the order of Rs. 10,000 crores has to be undertaken during the third plan. This may be compared with a total investment of Rs. 3360 crores in the first plan and of Rs. 6750 crores in the second. Further, to raise the national income to about Rs. 22,000 crores by the end of the fourth plan and to about Rs. 30,000 crores by the end of the fifth it will be necessary to provide for a net investment of the order of Rs. 15,000—16,000 crores in the fourth and Rs. 21,000—22,000 crores in the fifth plan.

13. *Significance of external resources.*—For growth in national income to be realised in a sustained and continuous manner, an essential requirement is that investment should become progressively larger in relation to the national income. A substantial part of the investment will require mainly domestic resources, but in the short period the lack of foreign exchange resources restricts the rate at which the potential resources of the country can be turned into productive wealth and outputs of capital goods and intermediate goods expanded rapidly enough to reduce the dependence on external resources. This deficiency is inherent in the character of the economy as it has functioned thus far. While possibilities of increasing foreign exchange earnings from the traditional exports have to be developed to the greatest extent possible, it is nevertheless true that the first impact of the effort to develop the basic and heavy industries and machine-building capacity is to accentuate the balance of payments problem. The problem of replacing imports is essentially one of developing the necessary capacity for production within the country. A developing economy which for its part endeavours to mobilise its own resources is faced with the dilemma that a large increase may occur in the import requirements for specialised capital equipment, machinery, metals, etc., for which it may not be able to pay for a period from its own export earnings. The need for external resources is implicit in this situation. Such assistance has already done a great deal to hasten India's economic growth and its value can scarcely be over-estimated. It is a basic objective in the strategy of development to create the conditions in which the dependence on external assistance will disappear as early as may be possible. To

this end, the highest priority is to be given to industries which are vital to export-earning and import-saving. There has to be special emphasis on policies and measures which will help in securing the surpluses needed from internal production and making them available for export at competitive prices. These aspects of export promotion are of the greatest significance for enabling the Indian economy in the course of the next two plans to secure its further advance on the strength of its own resources.

14. *Research and surveys.*—Large advances in science and technology which are taking place continuously demand that programmes of development in industry and allied fields should be kept under constant review. It is essential to exploit new possibilities as they arise, for instance, in the field of heavy chemicals, metallurgical industries, development of energy etc. Equally, it is essential to promote more intensive scientific research on the many problems which confront large and small industries in the country, to speed up the practical application of the results of research and devote greater attention to fundamental research in all fields. Small improvements in productivity which affect the work of millions of persons have enormous significance in terms of overall production and should therefore receive special attention in each phase of development.

15. Both the First and the Second Plans provided for surveys and investigations of natural resources. Valuable studies have been already undertaken by the Central Water and Power Commission, the Geological Survey of India, the Bureau of Mines, the Oil and Natural Gas Commission, the Indian Council of Agricultural Research, State Governments and other agencies. The stage has been reached when as a necessary condition of well-conceived long-term plans, a comprehensive view must be taken of the extent and quality of the information available, the principal gaps which exist and the further steps needed in relation to specific long-range objectives concerning the development of irrigation, power, steel, coal, oil and minerals and land and forest resources and the conservation of natural resources generally. In the light of such a review, systematic programmes for surveys and investigations have to be drawn up and the organisations concerned strengthened. An appropriate machinery for planning coordinated studies of natural resources on a continuing basis and reviewing the results obtained from time to time has now to be devised. This may take the form of a committee of direction composed of the technical heads of the various agencies concerned with which a few leading scientists are associated and which is assisted by a highly trained staff. For this purpose it is hoped to work out details in the near future.

3. APPROACH TO THE THIRD PLAN

16. In defining the objectives, priorities and targets for the Third Plan, the determining considerations are the social objectives described above, the requirements of the economy during the plan period, the perspective of long-term development to which the Plan has to be related, and the actual progress achieved during the first two plans. Over the period of the first and the second plan, national income is expected to increase by about 42 per cent. The Third Plan aims at securing an increase of over 5 per cent per annum in national income, so that over the 15 years, 1951—66, the total increase in national income will be of the order of 80 per cent. To achieve this, it will be necessary to step up investment from about 11 per cent of the national income at the end of the second plan to about 14 per cent by the end of the third plan.

17. A principal aim of the Third Plan is to secure a marked advance towards self-sustaining growth. Basically, self-sustaining growth implies that savings and investment in the economy rise sufficiently to secure a high rate of growth of income on a continuing basis. An important aspect of this problem is that of creating within the country the capacity—including the development of the designing and operational skills required—to produce the capital goods and equipment necessary to support the scale of investments proposed. As already explained, it is difficult for an under-developed economy to create within a short space of time sufficient export surplus to enable it to buy all the equipment it needs. The fullest effort has to be made for increasing export earnings; this is vital in balancing the external account. Nevertheless, a substantial part of the improvement in the balance of payments has to be sought through increased domestic production of capital goods and equipment in substitution for imports. In determining the scale and pattern of investment in the Third Plan, this objective of securing viability on external account within a period of 10 years or so is therefore being given high priority.

18. The Third Plan will have a large foreign exchange component, and this will have to be financed almost entirely from external sources. From now on, the pattern of investment has to be so chosen that, within the shortest period feasible, there should be no need to rely on special assistance, the inflow of capital from abroad being determined by normal conditions governing international capital movements. This implies, firstly, that the country will endeavour to produce the necessary output of machinery and equipment and

secondly, that it will produce food and raw materials required to sustain the tempo of development. Self-sustaining growth can only be achieved by balanced development both in agriculture and in industry. Incomes and employment cannot rise sufficiently without industrialisation. On the other hand, an industrial revolution cannot be achieved without a radical improvement in agricultural productivity. The Third Plan calls for effort both to enlarge the capital base and to raise the output of food and raw materials. Advance towards self-sustaining growth has thus several aspects: savings have to grow progressively to meet the demands of investment; basic and capital good industries have to be developed rapidly; the balance of payments gap has to be bridged over. The foundation of this advance is, as emphasised earlier, an efficient and progressive agriculture.

19. Taking into account the experience of the first two Plans and the considerations outlined above, the Third Plan is being formulated with the following aims:

(1) to secure during the third plan a rise in national income of over 5 per cent per annum, the pattern of investment being designed also to sustain this rate of growth during subsequent plan periods;

(2) to achieve self-sufficiency in foodgrains, and increase agricultural production to meet the requirements of industry and exports;

(3) to expand basic industries like steel, fuel and power and establish machine-building capacity, so that the requirements of further industrialisation can be met within a period of 10 years or so mainly from the country's own resources;

(4) to utilise to the fullest extent possible the manpower resources of the country and to ensure a substantial expansion in employment opportunities; and

(5) to bring about a reduction of inequalities in income and wealth and a more even distribution of economic power.

20. It should be stressed that the Third Plan represents an important phase in the development of the country's economy. In the course of the first two plans, the field organisation and the administrative machinery for agricultural development have been greatly strengthened. The development of the steel industry and of mining, power and transport provides the nucleus for more rapid advance in industrialisation. It is vital that the tempo of development that has been attained already is accelerated in the third plan.

and even more in the fourth. The success that can be achieved in this ten year period will make a vital difference to the standards of living of the people and the future growth rate of the economy.

REDUCTION IN INEQUALITIES

21. The aims of the Third Plan in respect of growth in national income, increase in agricultural production, expansion of industry, utilisation of manpower and increase in employment opportunities are described more fully in the appropriate chapters. A few words may be said here regarding the objective of reducing inequalities in income and wealth and securing a more even distribution of economic power.

22. The problem of reducing disparities in income and wealth is, in part, one of correcting existing inequalities, but its more important aspect is represented by the need to create conditions under which rapid growth can be achieved alongside a marked reduction in economic and social inequalities. In a number of directions measures have been already taken whose total effect in reducing economic and social disparities has been significant. In some of these a greater advance is anticipated during the third plan. Thus, within the rural economy, the progress of land reform has been a major factor in reducing inequalities. Security of tenures and reduction in rents have been largely achieved. In the course of the next two or three years, the legislation relating to ceilings on agricultural holdings will be implemented. The vast body of cultivators will also become owners of land in their own right. The expansion of irrigation, specially in areas which have in the past suffered from scarcity conditions, contributes to the raising of levels of living for some of the poorest sections in the rural community. Programmes relating to the welfare of backward classes—scheduled tribes, scheduled castes and others—are intended to benefit sections of the population who, in the present conditions, are not able to derive all the benefits due to them from the general plans of development. The extension of elementary education, which will become universal during the third plan for the age group 6—11 years, the increase in scholarships and other assistance which is contemplated, the establishment of primary health centres, the provision of drinking water supply in almost all rural areas, the eradiction of diseases like malaria and the extension of welfare activities of voluntary social service organisations, specially for women and children, go a long way to create the pre-conditions for equality of opportunity within the community. Increasingly, the community development movement is being required to place greater emphasis on measures to raise the levels of living and to provide work opportunities for the less privileged sections.

In many areas, the provisions made for rural industries and rural electrification will also increase opportunities of productive employment. As these various measures are implemented with wider support and understanding from public opinion, their impact will steadily extend to the great majority of the population. Fiscal measures, undertaken with a view to finding resources needed for rapid development and based on the principle that burdens shall be equitably distributed, will also greatly assist the process of reducing old inequalities and preventing new ones arising from the very process of growth.

23. Under the Plan there is a considerable role for the private sector in the industrial sphere. This is due in the main to the wide opportunities provided by the expansion of the economy under the impact of successive Five Year Plans. One of the main objectives of policy is that the opportunities which thus arise for private enterprise should be availed of by a large number of comparatively small and middle entrepreneurs and that possible trends towards concentration of economic power should be checked in the early stages. It is true that in the present phase of development well-established firms have certain advantages in organisation and expertise, better access to the capital market and to sources of foreign collaboration and availability of funds on a larger scale from businesses or industries which are within their control or influence. Modern technology also favours large-sized firms or plants in certain directions. From the broader social angle, however, it is essential that there should be a wide diffusion of enterprises in the private sector and new entrants should be encouraged and, at the same time, concentration of economic power and monopolistic tendencies should be countered effectively. The growth of the public sector in various fields, such as power, transport and heavy industries, places the State in a better position to ensure the broad direction of economic activity from the aspect of public interest. In addition, a series of positive measures, including special facilities and assistance need to be taken in support of medium and small enterprises. The Industrial Finance Corporation and other financial and promotional institutions set up by the Government have therefore to make a special effort to assist such enterprises. Licensing policies should be so operated as to facilitate the entry of new firms, promote medium and small enterprises and exercise due vigilance in regard to the expansion of large businesses.

24. Fiscal measures have also an important role and should be devised so as to reduce inequalities in income and wealth. In ensuring that the objectives set forth above are implemented, there is need for greater coordination between various agencies of Government, including those concerned with the administration of company

law, licensing of industry, capital issues and import policy. There are a number of problems in company management, such as inter-corporate investment, interlocking directors and the like, for which legislative measures have been adopted. It would be desirable to assess to what extent these measures are proving effective in practice. Another problem for examination is the working of some of the tax concessions or incentives which are now being given for private investment. These concessions and incentives have a part to play, but their working has to be assessed and related more directly to the fulfilment of the development programmes of various industries in accordance with the Plan. The problems of reducing inequalities in incomes and wealth and preventing concentration of economic power are complex and closely bound up with problems of rapid growth. The aspects to which attention has been drawn above, therefore, call for careful study with a view to evolving policies capable of securing the fulfilment of both the social and the economic objectives of national planning.

PRICE POLICY

25. Another important aspect of the Third Plan, to which special attention is being given at present, may also be mentioned here, namely, price policy. It is recognised that in the ordinary course the progressive step-up in investment which the Plan envisages is likely to exert an upward pressure on prices. The task of policy is to ensure that prices, especially of essential consumer goods, remain relatively stable despite this pressure.

26. The course of prices depends upon a variety of factors some operating on aggregate demand and some working through demand and supply of individual commodities. Price policy has therefore to act at a number of points, through fiscal measures, through monetary policy and through direct allocation and controls where necessary. Only a combination of measures in these various fields can ensure economic development with relative stability of prices.

27. The Plan envisages substantial increase in the production of foodgrains, cloth, sugar, etc. To the extent possible, the needs of essential consumption have been kept in mind while determining the pattern of investment. Nevertheless, imbalances between demand and supply are apt to develop from time to time, and it will be essential to take timely and effective action to correct untoward trends. This is particularly important in regard to foodgrains prices which not only effect adversely the more vulnerable sections of the community but react on the entire price-and-cost structure.

28. To tide over the period that may elapse before the domestic production of foodgrains comes up fully to the required level, imports will be necessary. The recent P.L. 480 agreement with the United States provides for these imports as well as for imports to build up a sizeable buffer stock of wheat. These supplies will help in steadying prices.

29. Price policy has, however, several wider aspects. It is necessary for a developing economy to strengthen its internal defences against price rises. While domestic wheat supplies will be supplemented by imports, there may be a shortage of rice. There may be in any year a partial failure of crops; there may be speculative withholding of stocks. Another problem which has emerged in recent years is that of large regional disparities in prices. Regulation of prices through suitable governmental action, state trading and marketing and distribution through cooperatives, is unavoidable if these situations are to be met adequately. Moreover, price policy for food has to be viewed in relation to the price trends in the rest of the economy, and a reasonable relationship maintained between prices in various sectors. What structure of regulatory devices, including price control, zonal arrangements, prescription of minima and maxima, state trading, etc. will ensure the optimum results needs to be carefully examined. These problems are at present under study by a Committee of the National Development Council.

30. The Plan envisages increases in taxation. Restraint on consumption through judicious taxation is an essential part of the Plan. The surpluses of public enterprises will also have to be maximised—in suitable cases through adjustments in prices. In this context, it is particularly important to avert adventitious or haphazard rise in prices. Price policy as well as the techniques of price regulation raise complex issues. They involve a balancing of several conflicting claims. Prices, incomes and costs are closely interrelated. It is essential, therefore, to ensure that the regulatory devices adopted function effectively and in a coordinated way. There is scope within limits for varying the techniques that might be used for securing the right relationship between prices, but Government must be in a position to exercise control effectively at all strategic points, should the situation so warrant.

CHAPTER II

PROGRESS UNDER THE FIRST AND SECOND PLANS

THE First and the Second Five Year Plans mark the first phase in fulfilling the economic and social objectives of India's planned development.

2. The First Plan sought to strengthen the economy at the base, first by repairing the damage caused by the War and the Partition; secondly, by providing certain essential social and economic overheads which would make rapid development possible; and thirdly, by establishing the basic social and economic policies for economic development according to the Directive Principles of State Policy laid down in the Constitution. Among the important steps initiated during this period, special mention may be made of the community development movement and the programmes for land reform.

3. In continuing and further developing the approach set out in the First Plan, the Second Plan aimed at a larger increase in production, in investment and in employment. At the same time, it sought to make the economy more dynamic in terms of economic as well as social ends through the building up of basic industries and the reorganisation of the rural economy through agrarian reform, community development and cooperation. The Plan placed emphasis on accelerating the rate of growth of the national economy, increasing employment opportunities, reducing disparities in income and wealth and preventing the concentration of economic power.

OUTLAY AND INVESTMENT

4. The total investment in the economy during the first two plans will be a little over Rs. 10,000 crores. Outlay in the public sector will amount to about Rs. 6,560 crores. The details are given below:

Table 1: Outlay and investment in first and second plans

(Rs. crores)

	first plan 1951-56	second plan 1956-61 (anticipated)	total 1951-61
public sector outlay	1960	4600	6560
public sector investment	1560	3650	5210
private sector investment	1800*	3100*	4900
total investment	3360	6750	10110

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*These are estimates revised in the light of fuller information and are in lieu of the estimates of Rs. 1600 crores in the First Plan and of Rs. 2400 crores in the Second Plan and are exclusive of transfer from the public sector.

These figures do not include investments financed out of resources transferred from the public sector.

INCREASE IN NATIONAL INCOME

5. During the first plan, owing largely to the progress recorded by agricultural production, the national income increased by 18 per cent. The Second Plan represented a larger and a more broad-based effort than the First. The benefits of a number of projects undertaken during this period will be realised in the early stages of the Third Plan. Foreign exchange difficulties experienced in the second year of the plan led to its reappraisal in 1958-59, the revised outlay in the public sector being Rs. 4,500 crores in place of Rs. 4,800 crores. The outlay likely to be achieved by the end of the plan is Rs. 4,600 crores. The increase in national income over the second plan period is expected to be about 20 per cent. Over the ten years, 1951—61, national income (at constant prices) will have increased by about 42 per cent, per capita income by about 20 per cent and per capita consumption by about 16 per cent. The infra-structure of the economy has been strengthened considerably, creating conditions for more rapid development in future. The progress achieved in different sectors of the economy is briefly reviewed below and further statistics are set out in the Annexure to Chapter III.

AGRICULTURE

6. Agricultural production trends since 1949-50 are summarised in the following Table:—

Table 2 : Index of agricultural production (1949-50=100)

	1950-51	1955-56	1958-59	1960-61 (expected)
all commodities	95·6	116·9	132·0	135·0
food crops	90·5	115·3	130·0	131·0
other crops	105·9	120·1	136·0	143·0

The table shows that there is a rising trend, agricultural production will be going up by about 40 per cent between 1950-51 and 1960-61. But variations from year to year have been considerable. The increase in the production of major agricultural commodities has been as follows:

Table 3 : Production of major crops

commodity	unit	1950-51	1960-61 (likely achievement)
foodgrain (cereals & pulses)	million tons	52.2*	75·0
oil seeds	million tons	5·1	7·2
sugar cane-gur	million tons	5·6	7·2
cotton	million bales	2·9	5·4
jute	million bales	3·3	5·5

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*Estimate of production adjusted for changes in statistical coverage, etc. upto 1956-57.

7. A wide range of agricultural programmes has been implemented. The most significant decision taken under the First Five Year Plan was to introduce extension services throughout the country as an integral part of the community development movement. By the end of the first plan, these services were established in 1,064 community development blocks, comprising 150,000 villages and a population of about 80 million. At the end of the second plan, the community development movement will have spread to about 3,100 development blocks comprising nearly 400,000 villages and a population of about 200 million. The programme will extend to all rural areas in the country by October, 1963. At the end of the second plan, the extension organisation at the block and village level will consist of about 31,000 village level workers and about 28,000 extension officers at the block level for agriculture, animal husbandry and other fields of development.

8. The expansion of the cooperative movement is illustrated by the increase in the number of primary agricultural societies from about 105,000 in 1951 to about 183,000 in 1958-59. During this period, the total membership of these societies increased from 4·4 million to 12 million. The number of village panchayats increased from about 83,000 to about 178,000.

9. The total irrigated area will increase from 51·5 million acres in 1950-51 to 70 million acres in 1960-61. About 4,000 seed farms are being established during the second plan as part of a programme for covering the entire cultivated area with improved seeds. The consumption of nitrogenous fertilisers will increase from 55,000 tons (in terms of nitrogen) in 1950-51 to 360,000 tons in 1960-61. Among other agricultural programmes in which there has been progress, reference may be made to the reclamation of 3·9 million acres of waste land, extension of green manuring to 22 million acres and soil conservation programmes extending to 2·7 million acres. Considerable progress has been made under the composting programme in urban and rural areas, as also in carrying out programmes of development for livestock, fisheries, milk supply, vegetable and fruit cultivation, forests and agricultural and animal husbandry research.

INDUSTRY AND MINERALS

10. The growth of industrial production since 1951 is shown in the following Table:—

Table 4 : Index of industrial production

	1951	1955	1956	1959
all commodities	100	122.4	132.6	151.1
cotton textiles	100	111.9	117.5	111.5
iron and steel	100	113.3	119.4	163.1
machinery	100	163.9	215.0	424.3
chemicals	100	159.0	171.1	214.0

Among the features of industrial development during the past decade which may be noted are the progress made in basic capital and producer goods industries, especially machinery and engineering industries. With the completion of three new steel plants in the public sector, the total finished steel capacity created will increase to 4·5 million tons as compared to one million tons at the beginning of the first plan, and 1·3 million tons at the beginning of the second plan. There has been considerable increase in the production of essential industrial materials like cement, coal, aluminium, etc. The country is now producing steadily increasing quantities of machine tools and machinery for use in agriculture and for cotton textile, jute, cement, tea, sugar and vegetable oil industries. By the end of the second plan, much of the equipment required by the Railways will be available from indigenous production. The aggregate value of all kinds of industrial machinery produced in the country has risen from Rs. 11 crores in 1951 to about Rs. 79 crores in 1958. The corresponding figures for electrical equipment are Rs. 20 crores and Rs. 71 crores respectively. A beginning has been made in the production of heavy electrical equipment. Chemical industries, including heavy chemicals, drugs and pharmaceuticals, fertilisers, etc. have also recorded progress. Under the second plan, programmes for the modernisation of the jute and cotton textile industries have been undertaken. In a number of industries, the import component has been materially reduced.

11. Some idea of the progress likely to be achieved in 1960-61 in the production of important producer goods may be obtained from the following Table:—

Table 5: Producer goods

commodity	unit	1950-51	1960-61 (likely production)
finished steel	million tons	1·0	2·6
aluminium	'000 tons	3 7	17
diesel engines	thousands	5·5	33
electric cables (ACSR) conductors	tons	1674	18000
nitrogenous fertilisers (N)	'000 tons	9	210
sulphuric acid	'000 tons	99	400
cement	million tons	2·7	8·8
coal	million tons	32	53
iron ore	million tons	3	12

The increase in production in certain important consumer goods industries is shown in the Table below:—

Table 6: Consumer goods

commodity	unit	1950-51	1960-61 (likely production)
cotton textile-mill cloth	million yards	3720	5000
sugar	million tons	1·10	2·25
paper and paper-board	'000 tons	114	320
bicycles (organised sector only)	thousands	101	1050
automobiles	number	16500	53500

The manufacture of a number of new products was established in the country for the first time, *e.g.*, industrial boilers, milling machines and other types of machine tools, diesel road rollers, industrial explosives, sulpha and antibiotic drugs, D.D.T., newsprint etc. Over all industrial production is expected to record an increase of about 120 per cent between 1950-51 and 1960-61.

12. Along with large and medium-sized industries, there has been considerable development in the field of village and small industries, for the promotion of which special measures were initiated in the first and second plans. Between 1950-51 and 1960-61 the production of handloom cloth will have increased from about 742 million to about 2,125 million yards, of khadi from over 7 million to about 80 million yards, and of raw silk from about 2 million to about 3·7 million lbs. Production of a number of small-scale industries like builders' hard-ware, hand tools, sewing machines, electric fans and bicycles also registered sizeable increases. Small Industries Service Institutes have been set up in all States. In addition, 42 extension centres have been established in association with these industries. About 60 industrial estates comprising 700 small factories will have been set up by the end of the second plan.

POWER

13. The installed generating capacity will increase from 2.3 million kW in 1950-51 to 5·8 million kW by the end of 1960-61. The number of towns and villages electrified will have increased from 3,687 in 1950-51 to 19,000 by 1960-61.

TRANSPORT AND COMMUNICATIONS

14. The decade 1951—61 has been a period of considerable expansion in transport. The rehabilitation of the Railways, which had suffered much damage on account of the War and the Partition, was the main objective during the first plan. During the second plan, the Railways have undertaken extensive development associated with the building up of basic industries like steel, coal and cement. From 91 million tons in 1950-51, the total freight traffic originating

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on the Railways is expected to increase to 162 million tons at the end of the second plan. About 1,200 miles of new railway lines are likely to be added, 1,300 miles of railway track doubled and 880 miles electrified by 1960-61. The number of locomotives is expected to increase from 8,200 in 1950-51 to 10,600 by the end of 1960-61, coaches from 19,200 to 28,900 and wagons from 199,000 to 354,100.

15. There has also been appreciable progress in road development. The mileage of surfaced roads will increase from 97,500 miles in 1950-51 to 144,000 miles in 1960-61. The number of commercial vehicles in the country will have nearly doubled during the period, the estimated number in 1960-61 being about 200,000 as against 116,000 in 1950-51. The shipping tonnage will increase during the period from 390,000 GRT to about 900,000 GRT.

16. The expansion of communication services during the first two plans is illustrated by increase between 1950-51 and 1960-61 in the number of post offices from 36,000 to 75,000, of telegraph offices from 3,600 to 6,300 and of telephone connections from 168,000 to 475,000. Notable advances have also been made in the development of the telephone industry, meteorology and overseas communications services.

17. Appreciable progress has been achieved in broadcasting. During the first plan, each language area was provided with at least one transmitting station bringing the number of stations to 26. In the second plan, the internal coverage has been extended and external services have been strengthened. A programme for the provision of commmunity listening sets in rural areas is also being implemented. The number of radio licences increased from 0·55 million in 1950 to 1·88 million in 1959.

SOCIAL SERVICES

18. Facilities for education, health and social welfare, whose importance in developing the country's human resources cannot be too greatly stressed, have increased substantially during this period. The number of elementary/basic schools is expected to increase from 223,000 in 1950-51 to 385,000 in 1960-61. The percentage of children attending school to all children in the age group 6—11 will increase from 43 in 1950-51 to 60 by 1960-61. The number of high/higher secondary schools will go up from 7,288 in 1950-51 to 14,000 in 1960-61 and that of arts and science colleges will increase from 516 to 1,050. The total number of students in schools will go up by about 75 per cent and in Universities by 140 per cent.

19. In the field of health, the number of hospitals and dispensaries will increase from 8,600 in 1950-51 to 12,600 in 1960-61 and hospital

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beds from 113,000 to 160,000. The number of medical colleges will increase from 30 to 55 and of registered doctors will increase from 59,000 to 84,000 during this period. The family planning programme which was initiated in the first plan has made steady progress and the number of centres is expected to rise from 147 in 1955-56 to about 1,800 in 1960-61.

TECHNICAL EDUCATION AND SCIENTIFIC RESEARCH

20. Facilities for technical education have been also considerably augmented. The annual intake of students in degree and diploma courses in engineering and technology is expected to increase by nearly four times from about 10,000 in 1950-51 to about 37,000 by the end of 1960-61. The annual intake of agriculture and veterinary colleges is expected to increase from 1,500 in 1950-51 to 5,800 in 1960-61.

21. The foundations for India's advance in scientific and technological research have been laid during the first and second plans. A large number of new research institutions have been established. These include 20 national laboratories and 3 regional research centres. The research departments of Universities have also been strengthened. Marked progress has been made in the field of atomic energy.

PRICES AND EMPLOYMENT

22. A brief reference may be made here to two features in the record of the Second Plan which have lessons for the future. In varying degrees, throughout the first four years of the plan, prices of foodgrains and agricultural raw materials as well as of several industrial commodities have tended to rise. The index of wholesale prices (1952-53 = 100) which stood at 99·2 at the end of the first plan rose to 106·1 two years later. Thereafter it rose to 112·1 in 1958-59. By the end of 1959-60 it stood at 118·6.

23. The increase in employment during the second plan has not kept pace with the growth of the labour force. It was hoped that the development programmes envisaged would lead to the creation of 8 million additional jobs outside agriculture. The achievement for the plan period is at present estimated at about 6·5 million.

CHAPTER III

THE THIRD PLAN IN OUTLINE

THE objectives of the Third Plan and the broad economic considerations which determine its size and pattern of investment have been set out earlier. The object of this chapter is to state briefly the general priorities in the Plan and to present a picture of the distribution of outlays between different sectors of development as well as a preliminary assessment of the targets envisaged in the Plan. An attempt is also made to indicate the provisional distribution of outlays between the Centre and the States. The targets indicated in different fields are provisional, the main intention being to assist further studies at the Centre and in the States. The results of studies concerning projects and programmes and their phasing, which will be completed in the course of the next few months, will be presented in the final report on the Plan.

PRIORITIES

2. The pattern of investment embodied in a five-year plan reflects the priorities and the relative emphasis in different sectors during the plan period. In turn, these derive as much from an assessment of the current economic situation and the likely trends as from the analysis of the basic economic and social problems of the country and the long-term goals. A number of considerations have, therefore, to be carefully balanced.

3. In the scheme of development the first priority necessarily belongs to agriculture. The importance of achieving self-sufficiency in foodgrains and meeting the requirements of industry and exports is one of the major aims of the Third Plan. Agricultural production has to be increased to the highest levels feasible, so that the incomes and levels of living of the rural population may rise and keep pace with incomes in other sectors. The level of agricultural production is an important determinant of the rate of growth of the economy as a whole. There is also an intimate connection between the expansion of the agricultural economy and the mobilisation of the manpower and other resources of the rural areas. An attempt has, therefore, been made to allocate sufficient resources for the development of agriculture and the rural economy. It is further envisaged that, as the Plan proceeds, if larger resources are needed for

assuring more rapid advance within the rural economy, specially through the fuller use of manpower, these will be made available.

4. The second set of general considerations concerns the priority accorded in the Plan to the related sectors of industry, power and transport. Development in these fields is vital for lifting the economy to a higher level and for its accelerated growth. It is recognised that beyond a stage, the growth of agriculture and the development of human resources alike hinge upon the advance made in industry. At all times agriculture and industry must be regarded as integral parts of the same process of development. Until an economy reaches the stage of self-sustaining growth, industrial development calls for large resources in foreign exchange.

5. Since large projects involve a considerable measure of waiting before the investments made result in increase in output, it is necessary both to plan ahead for them and to ensure that during each period there is a reasonable proportion between projects of long duration and those whose benefits accrue over shorter period.

6. Within each field in the sector of industry, power and transport, there is need for careful priorities, so that adjustments can be made readily. Secondly, programmes in these sectors should be worked out in a coordinated manner. Connected projects should be implemented as schemes closely related to one another, so that there is satisfactory phasing, and the expenditure incurred on each group of projects yields the maximum return.

7. In the field of industry, the Plan is being drawn up, in the first place, from the point of view of the needs and priorities of the economy as a whole, the public and the private sectors being considered together. The natural resources available as well as the growing requirements of the country justify greater emphasis on the basic industries, specially steel, machine-building, fuel and power. The capacity of the economy to develop in future from its own resources is largely dependent on the advance achieved in these industries and in agriculture.

8. Another set of priorities which has been kept in view in the Third Plan relates to social services and allied fields of development. These are essential for ensuring a fair balance between economic and social development. It is realised that in the development of the country's human resources, in evoking widespread public understanding and participation, education and other social services have a significance which cannot be too greatly stressed.

9. Some of the programmes included in this group are in fact directly linked to economic development, such as scientific research,

technical education and the training of craftsmen, and the provision of housing and townships in industrial areas. There are others which are indispensable on larger social considerations, such as the expansion of facilities for education, control of diseases and provision of health and medical services, family planning, and the provision of drinking water in rural and urban areas and of welfare services for the less developed sections of the community. Within the limits of the resources available, these needs have been provided for. In some directions, at any rate, as the Plan proceeds, every effort will be made to secure a larger measure of progress.

10. Another aspect which has claimed attention in the phasing of outlays under the Third Plan is the need to ensure that the output in different branches of the economy and the levels of savings of the community should increase continuously from year to year. It is also essential that there should be no avoidable lags between the creation of assets and the utilisation. At every point in the economy, whether in the public or in the private sector, the emphasis must be on obtaining the utmost by way of increased output from the investments which were made in the past and those which will be made during the third plan.

Distribution of Outlays and Investment

11. The Plan includes outlays both in the public and the private sectors. In the public sector, a distinction is made between investment expenditure and current outlays, the latter representing expenditure of the nature of staff, subsidies, etc. The Third Plan envisages a total investment of Rs. 10,200 crores, of which Rs. 6,200 crores will be in the public sector and Rs. 4,000 crores in the private sector. Including the current outlay estimated at Rs. 1,050 crores, the total outlay in the public sector will be Rs. 7,250 crores. Investment in the public sector also includes a sum of Rs. 200 crores corresponding to transfers from the public sector for capital formation in the private sector. In Table 1 below, outlay and investment in the Third Plan are compared with those in the Second:—

Table 1: Outlay and investment in the second and third plans*

(Rs. crores)

	public sector			private	total
	plan outlay	current outlay	investment	sector**	investment
Second Plan	4600	950	3650	3100	6750
Third Plan	7250	1050	6200	4000	10200

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*Two expressions in common use may be briefly explained :

(1) *Investment* is expenditure on the creation of physical assets (*e.g.* buildings and plant and equipment), including expenditure on personnel required for putting up these assets. The expression corresponds broadly to expenditure on capital account.

(2) *Current outlay* corresponds broadly to expenditure on revenue account on plan schemes; it is expenditure other than that classified as 'investment'.

**These figure do not include investments financed out of resources transferred from the public sector

It will be seen that the Third Plan provides for an increase of about 51 per cent in the total investment, of about 70 per cent and about 58 per cent respectively in the investment and outlay undertaken in the public sector, and about 29 per cent in the private sector investment.

12. The following Table shows the distinction of outlay and investment in the Third Plan:—

Table 2: Outlay and investment in the third plan

(Rs. crores)

	public sector			private	total
group	plan outlay	current outlay	investment	sector investment	investment
agriculture, minor irrigation and community development	1025	350	675	800	1475
major and medium irrigation	650	10	640	—	640
power	925	—	925	50	975
4 village and small industries	250	90	160	275	435
5 industry and minerals	1500	—	1500	1000	2500
6 transport and communications	1450	—	1450	200	1650
7 social services	1250	600	650	1075	1725
8 inventories	200	—	200	600	800
9 total	*7250*	*1050*	*6200*	*4000*	*10200*

13. The investment in the economy increased over the first plan from Rs. 500 crores to nearly Rs. 850 crores per annum. By the end of the second plan it is expected to reach an annual level of Rs. 1,450 crores to Rs. 1,500 crores. By the end of the third plan, the annual investment is likely to be in the range of Rs. 2,500 crores. Investment by public authorities rose from about Rs. 200 crores per annum to about Rs. 450 crores by the end of the first plan and is likely to rise to about Rs. 800 crores by the end of the second plan, the corresponding level expected to be reached at the end of the third plan being about Rs. 1,500 crores.

14. The general pattern of investment in the second plan is being continued in the third, but in the public sector there is greater emphasis on agriculture, industry and power and on certain aspects of social services. The distribution of plan outlays in different

sectors according to the Second and the Third Plan is given in the Table below:—

Table 3: Distribution of plan outlay in the public sector

(Rs. crores)

		outlay		percentage	
		second plan	third plan	second plan	third plan
1	agriculture and minor irrigation	320	625	6·9	8·6
2	community development & co-operation	210	400	4·6	5·5
3	major and medium irrigation	450	650	9·8	9·0
4	total 1, 2 & 3	980	1675	21·3	23·1
5	power	410	925	8·9	12·8
6	village & small industries	180	250	3·9	3·4
7	industry & minerals	880	1500	19·1	20·7
8	transport & communications	1290	1450	28·1	20·0
9	total 5, 6, 7 & 8	2760	4125	60·0	56·9
10	social services	860	1250	18·7	17·2
11	inventories	—	200	—	2·8
12	grand total	*4600*	*7250*	*100*	*100*

15. Investment in the private sector falls broadly into two parts, namely, (a) investment relating to the organised sector of industry, mining, electricity and transport, and (b) investment which is dispersed extensively over fields like agriculture, village and small industries, rural and urban housing etc. Data regarding the second category are necessarily very rough, but in recent years more precise information has become available in respect of the organised private sector. Details concerning the distribution of private sector investment under different heads are set out in the chapter on Resources.

Outlays in the Public Sector

16. The allocations proposed at present are necessarily provisional. They are intended to assist the Central and State Governments in undertaking detailed studies of their programmes and projects and in establishing priorities within each sector. In those sectors of the Plan for which responsibility lies mainly on the States, the final allocations will depend on the plans drawn up by State Governments and the relative emphasis which they are able to provide for different programmes, having regard to the competing claims and the financial resources available. In some fields, the targets of the Plan will result from district and block plans, for instance, in respect of agricultural programmes, development of cooperatives, village

industries, rural water supply, and works programmes for the full utilisation of manpower resources in rural areas. In the relevant sections in this Outline, attention has been drawn to certain fields in which, in the interest of rapid development, the present targets may have to be stepped up and the allocations relating to them suitably adjusted. Thus, it is envisaged that for approved programmes and targets, under agriculture, village and small industries, primary education, technical education, special works programmes for utilising manpower resources etc., for which additional domestic resources are found to be necessary as a result of examination by States and Ministries, resources needed will be made available. In respect of approved projects for which substantial external finance is required, once the necessary foreign exchange is found, every effort will be made to find the requisite internal resources.

17. The distribution of outlays between the Centre and the States will be known after the plans of States have been examined in consultation with them. Meanwhile, to assist States in drawing up their plans, the following tentative distribution of outlays has been indicated :

Table 4: Distribution of outlay between the centre and the states

(Rs. crores)

		total	centre	states
1	agriculture, minor irrigation and community development	1025	175	850
2	major and medium irrigation	650	5	645
3	power	925	125	800
4	village and small industries	250	100	150
5	industries and minerals	1500	1470	30
6	transport and communications	1450	1225	225
7	social services	1250	300	950
8	inventories	200	200	..
9	total	7250	3600	3650

This distribution is based on the assumption that as a general principle all development schemes *executed* by State Governments will form part of the plans of States and that only certain limited categories of schemes will be shown in the plans of Ministries as being "sponsored" by the Centre. In this way it is hoped to broaden further the scope of the plans of States and thereby to facilitate the integrated working of State programmes.

FOREIGN EXCHANGE

18. The foreign exchange requirements of investment under different heads of development are shown together for the public

and private sectors in the Table below along with the amounts of investment proposed:—

Table 5: Requirements of foreign exchange

(Rs. crores)

		investment	foreign exchange
1	industries & minerals including small industries	2935	1190
2	power	975	270
3	transport and communications	1650	300
4	agriculture, community development and irrigation	2115	75
5	social services (including construction)	1725	80
6	inventories	800	..
7	total	10200	1915
			say 1900

PHASING OF PROJECTS

19. In a development plan of the dimension and scope of the Third Plan, the correct phasing of projects and of outlays is of the greatest importance. Without this it will not be possible to implement the Plan efficiently to keep investments in harmony with the internal and external resource available from year to year, and to ensure that at each stage in the Plan there are a series of projects under execution which will yield results speedily and that there will be continuity both in planning and in the flow of benefits. To facilitate detailed work on the phasing of projects and programmes, the following broad criteria have been proposed:—

(1) The phasing of projects should be worked out with strict regard to the requirements of physical planning, especially planning of manpower and the provision of materials and of the ancillary services, including power and transport;

(2) Priority should be given to the early completion of the projects under execution and those carried over from the Second Plan. For these projects sufficient resources should be provided in the annual plans to facilitate completion within the minimum period necessary;

(3) There should be continuity of output from year to year. The phasing should be such as to ensure that at each stage of investment the maximum benefits possible are secured and there is a reasonable balance between projects with long gestation periods and those which can be completed over relatively short periods;

(4) In working out the relative priorities of different projects from the point of view of the economy as a whole, through appropriate phasing items included in the following groups should receive preference—

(a) items important for ensuring rapid growth of agricultural production *e.g.*, fertilisers;

(b) items which might become bottlenecks unless they are available at the right time *e.g.* transport, electricity, metallurgical coal, etc.;

(c) items required for the fulfilment of the export plan;

(d) items which are intended to replace unavoidable imports *e.g.* machinery, alloy and tool steels etc.; and

(e) technical education and training programmes.

20. While the considerations mentioned about will guide the phasing of projects within each sector, from the point of view of the Plan as a whole it will be necessary to ensure through annual plans that at each stage adequate resources are raised to meet the commitments (including those on account of foreign exchange) which result from the phased programme that is accepted. Equally, it will be essential to secure the necessary physical balances from year to year in respect of steel, cement, electricity, and other key commodities.

21. In a plan of national development stretching over a period of five years, the financial provisions initially proposed provide at best a framework within which various agencies can formulate and implement their programmes. It is inevitable that the financial allotments which are made from year to year should be influenced largely by the speed and efficiency of execution and the measure in which practical results are secured. The essential problem, therefore, is to devise in each field of development effective means for obtaining the maximum value from the outlays incurred. Under each head, those objectives which are essential need to be distinguished from others which may be of secondary importance. In every field, the main test is that the assets created or the services developed under the Five Year Plans should yield their fullest benefits as early as possible.

22. Frequently, in carrying out development programmes in a number of fields, there is resort to grants or subsidies. Wherever there is a subsidy, it is proposed that the working of the scheme will be investigated with a view to determining whether the subsidy can be withdrawn or reduced without injuring the objective in view.

It is also observed that in many development programmes which can enlist the participation of local communities or contributions from beneficiaries, in practice insufficient emphasis is placed on these aspects. This aspect needs to be watched carefully. Finally, as suggested later, the building component of every programme or project should be subjected to close scrutiny in the stage of planning, so that the maximum economies in construction may be realised.

TARGETS IN THE PLAN

23. The physical targets proposed in different sectors of development are at present preliminary in character. Consultations with representatives of different industries in the private sector are in progress and, on their completion, it will be possible to take a view of the industrial plan as a whole, including both the public and the private sectors. A large number of projects under industry and minerals and transport and communications, for which the Central Ministries are responsible, have yet to be worked out in detail, although their investigation and other preparatory measures are being expedited. The outline plans of State Governments, especially in sectors like agriculture, small industries, roads and social services, which will become available during September and October, 1960, are expected to be amended in the light of the local plans which will be drawn up in the districts and on the basis of further study. In these circumstances, the physical targets, which are indicated in the Draft Outline, represent broad dimensions of the effort envisaged in the Third Plan. Their main value lies in presenting the picture as a whole and in drawing attention to possible inconsistencies or weaknesses.

NATIONAL INCOME AND EMPLOYMENT

24. Examination of the targets of development which have been proposed in different sectors suggests that during the third plan the national income should increase by over 5 per cent per annum. As regards employment, the present indications are that the total employment outside agriculture in the Third Plan might be about 10·5 million out of a total increase in the new entrants of about 15 million, of which about 3·5 million are expected to be absorbed in agriculture.

BALANCE AND FLEXIBILITY

25. In drawing the framework of the Plan, the attempt has been made to provide for a reasonable balance at each vital point within the economy. Thus, the requirements of steel, coal, electricity and other commodities were assessed carefully and the Plan attempts to

provide for them. Similarly, in drawing up the railway plan, the likely increase in traffic arising from different developments has been taken into account. When work on the Plan proceeds beyond the present preliminary formulation and both the phasing of projects and the requirements and availability in different regions are considered, changes will doubtless be needed both in the physical targets which may be proposed and in the consequential financial allotments.

26. As explained earlier, in some fields, an important consideration in the phasing of programmes will be availability of foreign exchange. Since the picture in this respect can become definite only over a period, it has been felt desirable at this stage to provide for a somewhat flexible approach in considering projects involving foreign exchange for inclusion in the Plan. Accordingly, as explained in the Chapter on Industries and Minerals, industrial projects have been grouped into five categories as follows:

(1) projects under execution and carried over from the Second Plan;

(2) new projects for which external resources are already assured;

(3) new projects which can for the present be regarded as included in the Plan. Most of these have reached fairly advanced stage of preparation, but foreign exchange has not yet been arranged for them;

(4) other new projects for which preparatory work is less advanced and for which foreign exchange has not yet been arranged. In respect of these projects, definite decisions for inclusion in the Plan have not yet been taken, but the intention is that the projects should be worked out more fully and may, in due course, be considered for inclusion in the Plan; and

(5) projects of a contingent nature whose implementation will depend on certain developments which cannot at present be accurately foreseen.

27. The principal targets in the Third Plan are set out briefly along with statistics of progress during the first two plans in the annexure to this chapter. In this place it will be sufficient to draw attention to some salient features.

AGRICULTURE AND IRRIGATION

28. Agricultural production is to be stepped up by 30 to 33 per cent, depending upon the targets which may be finally decided upon as a result of work on area agricultural plans. The targets of additional

production proposed for some of the important agricultural commodities are given below:—

commodity	unit	additional production	percentage increase
foodgrains	million tons	25 to 30	33—40
oilseeds	million tons	2 to 2.3	28—32
sugarcane (gur)	million tons	1.8 to 2	25—28
cotton	million bales	1.8	33
jute	million bales	1.0	18

In addition measures will be taken to increase the production of food articles like fruits and vegetables, milk, fish, meat and eggs as also of other commodities like cocoanut, arecanut, cashewnuts, pepper, cardamom, tobacco, lac and timber.

29. The target proposed for foodgrains would allow for consumption of about 15 ozs. of cereals and 3 ozs. of pulses per capita per day besides providing some margin against emergencies. The target for raw cotton is expected to be sufficient to provide for 17·5 yards of cotton textiles per annum per capita and in addition allow for some exports.

30. As regards specific programmes for agricultural development, the net additional area benefited from major and minor irrigation works is estimated at 20 million acres after making allowance for some of the old works going out of use partly or wholly and other similar factors. This will bring the net irrigated area to about 90 million acres by the end of the third plan. About 40 million acres will be covered by dry farming techniques. Soil conservation measures are to be extended to an additional area of 13 million acres. The consumption of nitrogenous fertilisers is to be increased to 1 million tons in terms of nitrogen and of phosphatic fertilisers to 400 to 500 thousand tons in terms of P_2O_5. Also an additional area of 50 million acres is proposed to be covered by green manures. Plant protection measures will be extended to 75 million acres.

31. The community development programme will be extended to the entire rural area by October 1963. The programme of cooperative development will be intensified along the lines laid down by the National Development Council in November 1958 and finance from cooperative agencies is expected to play a considerable part in increasing agricultural production.

INDUSTRY AND POWER

32. In Industry special emphasis is being placed on the development of those industries which will help to make the economy self-sustaining, namely, steel and machine-building and the manufacture

of producer goods. Necessary measures are also being taken to expand the production of consumer goods.

33. Developments in iron and steel are linked with the target capacity of 10·2 million tons in terms of steel ingots and 1·5 million tons of pig iron for sale. The additional capacity and output in this field are expected to be realised almost entirely in the public sector. The Bhilai, Rourkela and Durgapur steel plants are proposed to be expanded contributing jointly 5·5 million tons of steel ingots. The plan also provides for a fourth steel plant in the public sector to be started at Bokaro. About 200,000 tons of steel ingots are expected from scrap-based electric furnaces and 200,000 tons of pig iron from low shaft blast furnaces proposed to be established on a decentralised basis in the private sector. Steps are also to be taken for the production of about 200,000 tons of alloy, tool and special steels.

34. Important advances will be made in the field of machinery and engineering industries during the third plan period. Proposals for this sector include: heavy machine building plant, foundry forge, coal mining machinery plant, heavy structurals plant, heavy plate and vessel works, heavy machine tool factory, doubling of the output of Hindustan Machine Tools, Bangalore, expansion of Heavy Electrical Project, Bhopal, two additional heavy electrical projects and schemes for the production of high pressure boilers and precision instruments.

35. Machinery manufacturing programme in the private sector are expected to supplement the efforts of the public sector. In relation to the levels of demand envisaged by 1965-66 for certain lines of machinery, *e.g.* textile, sugar, cement and paper machinery, programmes have been formulated which should lead to considerable reduction of imports of complete plants for the related industries.

36. The production of nitrogenous fertilisers is proposed to be stepped up from 210,000 tons in terms of nitrogen at the end of the second plan to 1 million tons at the end of the third. A substantial increase in the production of phosphatic fertilisers is also proposed.

37. The production of coal is proposed to be stepped up by 37 million tons over the target of 60 million tons set for the Second Plan *i.e.* to 97 million tons.

38. On the basis of the present proved reserves the Naharkatiya area is expected to produce 2·75 million tons of crude oil per year. Provision has been made both for the completion of the refineries at Nunmati and Barauni for processing the Naharkatiya crude and also for further exploration with a view to obtaining additional production of crude from Cambay and other areas where prospects appear to be favourable.

39. Among the other important targets which have been proposed so far are:

	unit	annual production	
		1960-61	1965-66
aluminium	'000 tons	17.0	75.0
cement	million tons	8.8	13.0
paper	'000 tons	320	700
sulphuric acid	'000 tons	400	1250
caustic soda	'000 tons	125	340
sugar	million tons	2.25	3.0
cotton textiles-mill cloth	million yards	5,000	5,800
bicycles-organised sector	'000 nos.	1,050	2,000
sewing machines	'000 nos.	300	450
automobiles	nos.	53,500	100,000

40. It is proposed to increase the total generating capacity of power from 5·8 million kW at the end of the second plan to 11·8 million kW at the end of the third plan. The programme for power includes a programme for nuclear power generation of 300,000 kW. It is expected that the 15,000 additional towns and villages will be electrified during the third plan period bringing the total to 34,000.

41. Programmes of development are being formulated by State Governments and the All-India Boards for the development of small scale industries including industrial estates, khadi (including Ambar khadi) and village industries, handloom, handicrafts, sericulture and coir. Broadly, the aim is to encourage the expansion of production through the private and co-operative sectors by providing positive forms of assistance like facilities for training, technical know-how, provision of credit, supply of raw materials, etc. Production of cloth in the decentralised sector, namely from handlooms, powerlooms and khadi is tentatively proposed to be increased from about 2610 million yards in 1960-61 to 3500 million yards in 1965-66. Production of raw silk will be increased from 3·7 million lbs. to 5·0 million lbs. The number of industrial estates is expected to increase from 60 in the second plan to about 360 in the third plan. In the programmes for small scale industries, the emphasis will be on promoting development in small towns and rural areas and on linking them up more closely with large scale industries as ancillaries or feeders. For handicrafts and coir, the programmes will be designed for achieving improvement in quality as well as for stepping up production and exports.

TRANSPORT AND COMMUNICATIONS

42. It is expected that the railways will be able to carry goods traffic to the extent of about 235 million tons in the last year of the

third plan, as against 162 million tons in 1960-61. 1200 miles of new railway lines will be constructed. Under the road development programme it is proposed to add during the third plan 20,000 miles of surfaced roads to the level of 144,000 miles expected in 1960-61. The expansion of road transport will be mainly in the private sector. It is roughly estimated that the number of commercial vehicles will go up from over 200,000 to about 300,000 during the third plan period. For the time being the shipping target has been placed at about 200,000 GRT in addition to the tonnage of 900,000 GRT expected to be achieved at the end of the second five year plan. This target is, however, felt to be insufficient and is to be examined further.

SOCIAL SERVICES

43. The progress made in the field of social services in recent years is reflected both in demands for larger resources for social services and in increased expectations on the part of the people. In some directions, large advances are expected to be made during the third plan. It is proposed to provide for free and compulsory primary education for the age-group 6—11 years. Making allowance for slower progress in female education in certain backward areas, it is estimated that the proportion of pupils to the number of children will go up from 60 to 80 per cent in the age group 6—11, from 23 to 30 per cent in the age group 11—14 and from 12 to 15 per cent in the age group 14—17. The total number of students in schools will go up from 41 million in 1960-61 to 65 million in 1965-66.

44. Scientific and technical education will be given increasing support. The number of pupils taking science courses in colleges is expected to rise from 30 ot 40 per cent of the total. The intake capacity of engineering colleges and polytechnics will increase from 37,000 at the end of the second plan to 52,500 at the end of the third plan. Scientific labaratories and engineering enterprises will be encouraged to provide facilties for technical training. Special provision will be made for part time and correspondence courses.

45. In the field of health services, the number of registered doctors will increase from 84,000 to 103,000, of hospital beds from 160,000 to 190,000 and of hospitals and dispensaries from 12,600 to 14,600. The number of primary health centres will be increased from 2,800 to 5,000. The programme for family planning will be given a very high priority and the number of clinics will be increased from 1,800 to 8,200. Programmes for low income group housing, housing for industrial workers, slum clearance and slum improvement and acquisition and development of land for housing will be expanded and finance for housing will be provided through Housing Finance Corporations.

46. The Third Plan includes a programme of local development works for enabling all rural areas to provide themselves with certain minimum amenities. These are (a) adequate supply of drinking water, (b) roads linking each village to the nearest main road or railway station, and (c) the village school building which may also serve as a community centre and provide facilities for the village library.

47. The targets for the Third Plan as at present envisaged will take the economy a considerable distance towards the stage of self-sustaining growth. The ground will also be prepared for more rapid development under the Fourth Plan. In view of the large investments which have been already made, it is essential to ensure that the assets created are utilised to the best advantage. The process of development itself will offer fresh possibilities for increasing output and employment and the effort should be to take advantage of these possibilities by ensuring the fullest possible utilisation of manpower and mobilisation of the savings of the community.

ANNEXURE

Production and development : progress and targets

item	unit	1950-51	1955-56	1960-61 (anticipated)	1965-66 targets	increase in 1960-61 over 1950-51 (percentage)	increase in 1965-66 over 1960-61 (percentage)
1	2	3	4	5	6	7	8
1 agriculture & community development							
1.1 agricultural production							
foodgrains	million tons	*52·2	*65·8	75·0	100-105	*44*	*33-40*
cotton	million bales	2·9	4·0	5·4	7·2	*86*	*33*
sugarcane-gur	million tons	5·6	6·0	7·2	9·0-9·2	*29*	*25-28*
oil seeds	million tons	5·1	5·6	7·2	9·2-9·5	*41*	*28-32*
jute	million bales	3·3	4·2	5·5	6·5	*67*	*18*
tea (*a*)	million lbs	613	678	725	850	*18*	*17*
tobacco	'000 tons	257	298	300	325	*17*	*8*
fish	million metric tons	0·7	1·0	1·4	1·8	*100*	*29*
milk	million mds.	466	528	600	690	*29*	*15*
wool	million lbs	60	65	72	90	*20*	*25*
1.2 agricultural services							
area irrigated (net total)	million acres	51·5	56·2	70·0	90·0	*36*	*29*
land reclamation (addtional area)	million acres	..	2·7	1·2	1·0	..	..
soil conservation (additional area benefited)	million acres	..	0·7	2·0	13·0	..	...
nitrogenous fertilisers consumed	'000 tons of N	55	105	360	1000	*555*	*178*
phosphatic fertilisers consumed	'000 tons of $P_2 O_5$	7	13	67	400-500	*857*	*497-646*
seed farms	number	..	..	4000	4500	..	*13*

1.3 community development							
blocks	number	..	1064	3112	5217	..	*68*
villages covered	thousands	..	150	400	550	..	*38*
population served	million number	..	78	200	374	..	*87*
2 power							
electricity (installed capacity)	million kW	2·3	3·4	5·8	11·8	*152*	*103*
electricity generated	million kWh	6,575	11,000	20,700	42,250	*215*	*104*
towns and villages electrified	thousands	3·7	7·4	19·0	34·0	*414*	*79*
3 minerals							
iron ore (*a*)	million tons	3·0	4·7	12·0	32·0	*300*	*167*
coal (*a*)	million tons	32·0	38·0	53·0	97·0	*66*	*83*
4 large scale industries							
4.1 metallurgical industries							
finished steel	million tons	1·0	1·3		6·9	*160*	*165*
pig iron (for sale)	million tons	0·35	0·38	0·90	1·50	*157*	*67*
copper	'000 tons	..	7·3(*a*)	7·9	18·4	..	*133*
aluminium	'000 tons	3·7	7·3	17·0	75·0	*359*	*341*
4.2 mechanical and electrical engineering							
cement machinery	value in Rs. lakhs	..	34(*a*)	80	450	..	*463*
sugar machinery	value in Rs. lakhs	..	19	440	1000	..	*127*
machine tools (graded)	value in Rs. lakhs	29	72(*a*)	550	3000	*1797*	*445*
ball and roller bearings	million number	0·1	0·9	2·4	12·0**	*2300*	*400*
deisel engines	thousands	5·5	10·0	33·0	66·0	*500*	*100*
tractors	number	..	..	2000	10000	..	*400*
electric motors (200 b.h.p. and below)	'000 h.p.	100	270	800	2500†	*700*	*213*
electric transformers (33 kv and below)	'000 kva	179	625	1350	3500	*654*	*159*
electric cables (ACSR) conductors	'000 tons	1·7	8·7	18·0	44·0	*959*	*144*

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*estimates of production adjusted for changes in statistical coverage and methods of estimation upto 1956-57

(*a*) relates to calendar year **by working to capacity on three shifts

†300 h.p. and below

item	unit	1950-51	1955-56	1960-61 (anticipated)	1955-56 targets	increase in 1960-61 over 1950-51 (percentage)	increase in 1965-66 over 1960-61 (percentage)
1	2	3	4	5	6	7	8
4.3 railway locomotives							
steam and diesel	number	n.a.	500‡	1250‡	1609‡	..	29
electric	number	..	..	..	232‡	..	..
4.4 chemicals							
fertilisers							
nitrogenous (in terms of nitrogen)	'000 tons	9	79	210	1000	2233	376
phosphatic (in terms of P_2O_5)	'000 tons	9	12	70	400-500	678	471-614
sulphuric acid	'000 tons	99	164	400	1250	304	213
soda ash	'000 tons	45	81	240	450	433	88
caustic soda	'000 tons	11	35	125	340	1036	172
sulpha drugs	tons	..	83(*a*)	150	1000	..	567
D.D.T.	tons	..	284	2800	2800	..	..
4.5 other industries							
sewing machines (organised sector only)	thousands	33	111·2	300	450	809	50
bicycles (organised sector only)	thousands	101	513	1050	2000	940	90
automobiles	thousands	16·5	25·3	53·5	100	224	87
cotton textiles (mill made)	million yards	3720	5102	5000	5800	34	16
sugar	million tons	1·10	1·90	2·25	3·00	105	33
steel structural fabrications	'000 tons	..	90	250	1000	..	300
cement	million tons	2·7	4·6	8·8	13·0	226	48
petroleum products	million tons	..	3·6	4·6	7·4	..	61
paper and paper board	'000 tons	114	187	320	700	181	119
5 village and small industries							
khadi : traditional	million yards	7·3	28·9	48·0	3500	558	
ambar	million yards	..	..	32·0		..	
handloom	million yards	742	1471	2125		186	34
powerloom	million yards	148	273	405		174	
sericulture (raw silk)	million lbs	1·9	3·1(*a*)	3·7	5·0	95	35

6 transport and communications							
6·1 transport services							
railways :							
passenger train miles . .	million	95	109	124	143	*31*	*15*
freight carried . . .	million tons	91	114	162	235	*78*	*45*
roads : surfaced including national highways . .	'000 miles	97·5	122·0	144·0	164·0	*48*	*14*
shipping	million GRT	0·4	0·5	0·9	1·1	*125*	*22*
6·2 communications							
post offices . . .	'000 numbers	36	55	75	95	*108*	*27*
telegraph offices . .	'000 numbers	3·6	5·1	6·3	8·3	*75*	*32*
number of telephones .	'000 numbers	168	280	475	675	*183*	*42*
7 education							
7.1 general education							
students in schools . .	million numbers	23·5	31·5	41·1	64·8	*75*	*58*
school going children as percentage of children in the respective age groups :							
primary stage	5-11 years	43	51	60	80	*40*	*33*
middle stage . . .	11-14 years	13	16	23	30	*77*	*30*
higher secondary stage .	14-17 years	5	8	12	15	*140*	*25*
institutions :							
primary/junior basic schools	'000 numbers	209·7	278·1	354·9	500·0	*69*	*41*
middle/senior basic schools .	'000 numbers	13·6	21·7	30·0	45·0	*121*	*50*
high/higher secondary schools	'000 numbers	7·3	10·8	14·0	18·0	*92*	*29*
multipurpose schools .	'000 numbers	..	0·4	1·6	1·8	..	*13*
7.2. technical education							
engineering and technology							
degree level (intake) .	number	4119	5888	13165	18500(b)	*220*	*41*
diploma level (intake) .	number	5903	10484	24020	34000(b)	*307*	*42*

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‡relates to the plan period
(b) in addition to this, facilities would be provided in part-time courses

item	unit	1950-51	1955-56	1960-61 (anticipa-ted)	1965-66 targets	increase in 1960-61 over 1950-51 (percentage)	increase in 1965-66 over 1960-91 (percentage)
1	2	3	4	5	6	7	8
agriculture							
degree level (intake) .	. number	1060	1989	4500	6000	*325*	*33*
veterinary degree level (intake)	. number	434	1269	1300	1550	*200*	*19*
8 health							
8.1 institutions							
hospitals and dispensaries	. '000 numbers	8·6	10·0	12·6	14·6	*47*	*16*
hospital beds .	. '000 numbers	113	125	160	190	*42*	*19*
primary health units	. number	..	725	2800	5000	..	*79*
family planning centres .	. number	..	147	1797	8197	..	*356*
8.2 personnel							
medical colleges (intake) (*a*)	. number	2854	3655	4790	n. a.	*68*	..
doctors (registered)	. '000 numbers	59	70	84	103	*42*	*23*
nurses (registered) .	. '000 numbers	17	22	32·5	52·5	*91*	*62*
midwives* (registered) .	. '000 numbers	18	27	40	70	*122*	*75*
nurse-dais and dais (registered)	'000 numbers	2·2	6·8	12·0	42·0	*445*	*250*
health assistants and sanitary inspectors . .	. '000 numbers	3·5	4·0	7·0	14·0	*100*	*100*

(*a*) relates to calendar year

*including nurses registered as mid-wives and auxilliary-nurse midwives

CHAPTER IV

RESOURCES FOR THE PLAN

As stated earlier, the Third Plan proposes an outlay of Rs. 7,250 crores by the Central and State Governments and the enterprises in the public sector. Of this, about Rs. 1,050 crores will represent current outlays (that is, the total of recurring expenditure over the five year period for increasing the level of social services and for certain administrative overheads) by the Central and State Governments and Rs. 6,200 crores would be investment outlays. Investment by the private sector is estimated at Rs. 4,000 crores. The total of public and private investment (net) over the plan period thus works out at Rs. 10,200 crores.

2. The estimates given above are in terms of the resources to be raised by the public and private sectors. From the total of Rs. 6,200 crores of investment outlay by the public authorities, about Rs. 200 crores would be loans to the private sector towards capital formation*. This includes loans to agriculturists, to small-scale enterprises and to organised industries, partly by way of budgetary allocations and partly through provision of capital to the financial institutions set up for these purposes. Investment in the public sector would thus be Rs. 6,000 crores and in the private sector Rs. 4,200 crores.

3. The Plan aims at raising the level of investment in the economy from about 11 per cent of national income by the end of the second plan to about 14 per cent by the end of the third plan. The rate of savings in the economy is at present around 8 per cent of national income. This has to be raised to about 11 per cent by the end of the third plan, the balance representing inflow of resources from abroad. The role of external assistance is to supplement domestic savings by bridging the gap between essential import requirements and export possibilities.

4. The problem of resources, especially in its balance of payments aspect, has to be viewed not merely in terms of the requirements of the five year period as a whole but in relation also to the year by

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* This is exclusive of the extension of credit by the Reserve Bank to cooperative nstitutions and other financing agencies.

year phasing of plan outlays. This latter has to be decided upon in terms of several criteria: the need to complete as early as possible the projects in hand, the desirability of commencing new projects in time to ensure the realisation of the output targets defined, the availability of foreign exchange resources, etc. Considerable further work will have to be undertaken in the coming months before arriving at a precise phasing of plan outlays. It is clear, however, that for carrying through the programmes of development as envisaged, it will be essential, besides securing external resources, to continue and strengthen the effort at mobilising internal resources.

RESTRAINT IN CONSUMPTION

5. The step-up in investment from a total of Rs. 6,750 crores* in the second plan to a total of Rs. 10,200 crores for the third plan period will call for a large effort for mobilising domestic resources. National income is expected to increase during the third plan period at a rate of over 5 per cent per annum. It is from this source that the additional demands for investment and for consumption have to be met. The consumption requirements of the economy, it should be noted, are going up steadily because of the increased rate of population growth, the trend towards urbanisation and the growing desire on the part of the people to secure higher standards of living. The Plan envisages substantial increases in the production of essential consumer goods like foodgrains and cloth. It will, however, be necessary to restrain consumption in order that sufficient resources become available for investment.

6. The measure of restraint involved depends upon the rate at which the output of the community can be increased. Given the rate of increase in national income—of over 5 per cent per annum—mentioned above, it would be possible, consistently with the objective of raising the rate of savings from 8 per cent to 11 per cent of national income, to permit consumption to rise at a rate of over 4 per cent per annum. This would be a significant increase in consumption. There is thus no question of depressing the current levels of consumption; what is required is to restrain the growth of consumption beyond the levels envisaged in the Plan. The Plan provides for sufficient increases in the production and supply of essential consumer goods like foodgrains, cloth, sugar, drugs and pharmaceuticals, bicycles, etc., but these increases in output are, by and large, conditional upon the increases in investment proposed. The demands

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* Exclusive of about Rs. 150 crores of investment not included under 'Plan Outlays'.

for investment have thus a higher priority than those for consumption if the economy is to move forward rapidly. A substantial increase in savings, both public and private, is vital for the success of the developmental effort proposed in the Plan, and the object of fiscal, monetary and other regulatory measures must be to bring about this increase in savings.

FOREIGN EXCHANGE SHORTAGE AND PRICE STABILITY

7. Two important points may be made at this stage before presenting the estimates of resources for the Third Plan. Firstly, the Third Plan starts, unlike the first two, with a low level of foreign exchange reserves. It will be, therefore, essential in the third plan to exercise the utmost vigilance in respect of imports and to enlarge foreign exchange earnings to the maximum extent possible. Secondly, the level of prices now is more than 20 per cent above the level at the commencement of the second plan and it is essential to ensure that for the third plan period a suitable price policy is formulated and carried out. Both these considerations demand that inflationary financing of public outlays must be kept down to the barest minimum. It should be noted in this connection that it is not sufficient to keep down budgetary deficits; what is essential is to ensure that credit creation in the aggregate, both for the public and for the private sector, is limited to what the economy can absorb at a fairly stable level of prices.

FAVOURABLE FACTORS

8. These are considerations which are inherent in any plan of large scale development. In assessing the prospects for mobilising internal resources, it must be emphasized at the same time, that the situation now is in several respects more favourable than in the earlier plans. There has been a substantial step-up in investment over the last ten years. This has not only raised the levels of production but has also added significantly to the production potential of the economy. There has been substantial progress in irrigation, power and transport. Several of the industrial projects commenced in the second plan will yield their full benefits in the third plan period. While in the second plan most of the public sector projects were in the construction stage, in the third plan they will be funtioning and will yield surpluses. These surpluses can and must be drawn upon for financing further investment. The enlargement of educational and training facilities that has already taken place and will proceed further in the third plan will yield increasing returns in the years to come. It is also noteworthy that the supply of

entrepreneurial talent, managerial experience, and skills is on the increase.

9. The problem of finding resources for a plan is not to be viewed as one of drawing upon some fixed or static pool. To an extent, resources grow as the economy develops. Despite the stresses and strains of the last few years, the progress that has been achieved provides the basis for a larger effort in the coming years. There is, of course, an interval of time that must elapse before a given investment results in output, especially when this investment is of the basic type. The vicious circle of poverty and low levels of saving and investment can, however, be broken only by more effective mobilisation of potential resources and by a continuous channelling of the consequential gains in production into investment. An important potential resource in the country is unutilised manpower. This must be harnessed to production to the maximum extent possible.

THE SCHEME OF FINANCING: PUBLIC SECTOR

10. The resources position for the Third Plan has been studied in considerable detail over the last few months in the light both of past trends and of the likely growth of the economy during the third plan period. The estimates thus worked out provide the basis on which the allocations for the Plan have been worked out. The first estimates of resources were worked out towards the end of last year on the basis of 1959-60 budgets. They have since been reviewed in the light of the revised estimates for 1959-60 and the budget estimates for 1960-61. Nevertheless, these estimates have still to be regarded as tentative. Detailed discussions are to be held during August and September, 1960 on the resources position of the State Governments. It will also be necessary to review the estimates of the Centre's resources towards the end of 1960 in the light of the latest trends. In respect of some of the sources mentioned below, such as the surpluses that can be obtained from public enterprises, further scrutiny will be required. The final estimates in respect of individual items on the receipts side as also on the expenditure side may alter to some extent in the light of this further examination, but the broad picture that emerges can be taken as indicative of the order of contribution that can be expected or will be called for from each major source towards the financing of the Third Plan.

11. The scheme for financing the Third Plan outlay in the public sector as envisaged in the light of the studies undertaken so far is given in the table below. For purposes of comparison, the contri-

bution of each source—on present expectations—towards the financing of the Second Plan is also indicated.

Table 1: Financial resources

(Rs. crores)

		second plan	third plan
1	balance from revenues on the basis of existing taxation	(—)100	350
2	contribution of the Railways on the existing basis	150*	150
3	surpluses of other public enterprises on the existing basis	**	440
4	loans from the public	800	850
5	small savings	380	550
6	provident funds, betterment levies, steel equalisation fund and miscellaneous capital receipts	213	510
7	additional taxation, including measures to increase the surpluses of public enterprises	1000	1650
8	budgetary receipts corresponding to external assistance	982	2200
9	deficit financing	1175	550
10	total	4600	7250

Brief comments on the estimates shown above are given in the paragraphs that follow.

12. *Balance from revenues.*—On present estimates of revenue receipts for the third plan period and of the likely level of 'committed' expenditure, the balance from revenues available for the Plan works out at Rs. 350 crores. For working out the estimates of receipts, account has been taken of the increases in output in important fields during the third plan as also the expected rising trend of national income as a whole. On the side of expenditure, the past trends have been projected to the future years and provision has been made for the maintenance of schemes that will have been completed by the end of the second plan.

13. *Contribution of the Railways.*—This represents the surpluses of the expected current earnings of the Railways over their working expenses (excluding expenditure on Open Line Works which is treated as investment) after providing for depreciation outlays at

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* Inclusive of increased fares and freights.

** Included in (1) above.

Rs. 65-70 crores a year and the payment of interest and dividend in accordance with existing arrangements.

14. *Surpluses of other public enterprises.*—The surpluses from Central Government enterprises (iron and steel, fertilisers, oil extraction and refining, Posts and Telegraphs, etc.) are estimated at Rs. 300 crores and from the enterprises of State Governments (electricity boards, transport undertakings, etc.) at Rs. 140 crores. These estimates represent the balance of resources available with public enterprises after providing for their working expenses as well as depreciation outlays. The estimates have been made on certain broad assumptions and are, therefore, very rough. It is proposed to examine them in greater detail in consultation with the Central Ministries and State Governments before the Plan is finalised.

15. *Loans from the Public.*—Market borrowings over the second plan period are estimated at Rs. 800 crores. This total is, however, inclusive of purchases of Government securities by the State Bank out of the deposits of P.L. 480 funds. For the Third Plan, the accrual of resources from all external assistance, including that under P.L. 480 is taken credit for under "budgetary resources corresponding to external assistance". The estimate of Rs. 850 crores for the third plan period assumes considerable increases in the subscriptions by the Life Insurance Corporation and from the various provident funds. It is also inclusive of the proceeds of prize bonds.

16. *Small Savings.*—The small savings target of Rs. 110 crores a year on an average is high relatively to the collections during the second plan. But, this is a source which has to be developed assiduously.

17. *Provident funds, betterment levies, etc.*—This item includes Rs. 230 crores by way of net additions to provident funds, Rs. 75 crores from betterment levies, Rs. 160 crores from the Steel Equalization Fund and Rs. 45 crores by way of balance of miscellaneous capital receipts over expenditure.

18. *Budgetary receipts corresponding to external assistance.*—As will be seen from the subsequent discussion on the balance of payments for the third plan period, the total of external assistance required for the Plan is estimated at Rs. 3,200 crores. Of this, Rs. 450—500 crores represents repayments of external obligations during the third plan period. About Rs. 300 crores might go to the private sector; this would include private capital inflows, as well as loans from agencies like the World Bank, the International Finance Corporation and the U.S. Export-Import Bank.

Lastly, of the total P.L. 480 assistance of about Rs. 608 crores under the recent agreement with the U.S., about Rs. 200 crores would represent buffer stocks (4 million tons of wheat and 1 million tons of rice), which will not yield rupee resources. From the total external assistance of Rs. 3,200 crores—assuming that it is forthcoming in its entirety—we have thus to deduct the three items just mentioned totalling about Rs. 1,000 crores. The balance of Rs. 2,200 crores would then be available as budgetary resources for the public sector.

19. *Deficit financing.*—As mentioned earlier, the scope for deficit financing in the third plan is very limited. There is no precise way of estimating the safe limits of deficit financing. Increase in money supply through the budget as well as credit creation by the banking system have to be viewed together in this context. On a broad consideration of the trends in aggregate output, one might assume that money supply could increase by about 33 per cent in the third plan period without causing excessive pressure on prices. On the basis of an estimated quantum of money supply by the end of the second plan, the additional money creation permissible in the third plan period might be of the order of Rs. 950 crores—if it is assumed that money supply and aggregate output would be approximately in balance at the end of the second plan. Part of the increase in money supply comes about through the banking system. Allowing for this, the amount of budgetary deficits that could be considered permissible for the third plan period is taken at Rs. 550 crores. It must be emphasised, however, that decisions regarding deficit financing have to be taken in the light of the economic situation as it emerges from time to time. A great deal depends on how far production increases, specially in agriculture and how effectively inflationary trends are held in check.

ADDITIONAL TAXATION

20. The fulfilment of the additional taxation target of Rs. 1,650 crores over the five year period is vital for the successful implementation of the Plan. Tax revenues in India now total about 8·5 per cent of national income. With the normal increases in tax yields following increases in national income and with the additional taxation proposed for the Third Plan, the proportion should go up to about 11 per cent. This cannot be considered an excessive increase in the tax burden, when the developmental activities of Government are being rapidly accelerated. Nevertheless, an additional tax target of Rs. 1,650 crores will involve considerable effort on the part of the Central and State Governments to broaden their

tax structure. On the basis of the estimates made so far, the minimum target for additional taxation in the States will have to be about one-third of the total just mentioned.

21. The limits of taxation over a particular period cannot, obviously, be decided upon only in terms of the requirements by way of investment and other developmental outlays. On the other hand, a plan of the dimensions envisaged cannot be put through without an adequate tax effort. The two aspects of the problem, namely, needs and practical possibilities, have to be viewed together. It is essential in this context to consider and balance economic as well as other considerations. On the whole, the additional tax target of Rs. 1,650 crores is within the limits of practicability in view of the expected increases in national income, and especially in food production. It is also the minimum required, considering that every source of finance has to be fully drawn upon for carrying through the accepted programmes of development.

22. The details of tax measures to be adopted will have to be decided upon in the light of the emerging economic situation. It is clear, however, that the Third Plan will necessitate increases both in direct and in indirect taxation, as also measures to raise the surpluses of public enterprises.

23. As regards income and corporation taxes, further increases in yields will have to be sought mainly through a tightening of tax administration, watch on expense accounts of companies, and other measures to check tax evasion. Indirect taxes and increases in the prices of products of public enterprises will, it must be recognised, tend to raise prices and costs, but this is part of the calculated sacrifices that have to be made.

24. A word may be said here regarding the price effects of indirect taxes as compared to those of deficit financing. The essential difference is that while the latter are haphazard and tend to be cumulative, the former have the effect of mopping up the surplus purchasing power in the hands of the community. Indirect taxation "works off" the inflation potential by raising prices, deficit financing builds up the inflation potential further. Indirect taxation is in certain situations a way of diverting to the public sector the undue profits that would otherwise have accrued mostly to middlemen and traders.

25. An important function of taxation in a developing economy is to keep down consumption to the limits set by the claims of investment. Direct taxation seeks to achieve this result by reducing disposable incomes. Indirect taxation works through a reduction in

the quantum of goods that can be bought against the incomes that are spent. The relative limits of each form of taxation have to be determined pragmatically. The effects of taxation, whether direct or indirect, are often complex, and great care has to be taken while framing tax measures to ensure that the economic fabric is not stretched too far or at the wrong points. It must be emphasised, however, that the alternative to adequate taxation is either a slower rate of development or a situation where excess purchasing power presses upon the limited supply of goods and services available. Taxation is one of those fields in which immediate sacrifices tend to loom rather large relatively to the longer term benefits. Yet it is evident that the development process benefits all sections of the community. For the majority of the people, the additional taxation mentioned above will still permit a rise in consumption; the sacrifice is thus relative, not absolute. The growing investment activity in the public sector requires a growing volume of public savings, and taxation together with the surpluses of public undertakings has to be an important element in any developmental plan.

PRIVATE INVESTMENT

26. Investment in the private sector covers not only organised industry, mining, electricity and transport, but also large and dispersed fields like agriculture, village and small industries, rural and urban housing, etc. It is not possible with the data available to present a meaningful scheme of financing the investments in this entire sector. A broad view as to the feasibility of the proposed scale of investment has to be taken on a comparison with past trends. The following Table sets out the likely levels of investment under major heads in the private sector in the third plan period as compared to the initial estimates of the Second Plan and the estimates of investment as now revised in the light of the studies made in the Reserve Bank.

Table 2: Investment in the private sector

(Rs. crores)

		second plan		third plan
		original estimates	estimated investment on the revised basis*	estimates*
1	agriculture (including irrigation)	275	675	850
2	power	40	40	50
3	transport	85	135	200
4	village and small industries	100	225	325
5	large and medium industry and minerals	575	700**	1050**
6	housing and other construction	925	1000	1125
7	inventories	400	525	600
8	total	2400	3300	4200

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*These figures represent aggregate investment in the private sector, including that financed out of resources transferred from the public sector.

**These figures do not include investment by way of modernisation and replacement.

27. It will be seen that as compared to the levels of private investment in the Second Plan as now estimated, the Third Plan proposes a substantial step-up mainly in the field of large and medium industries—from Rs. 700 crores to Rs. 1,050 crores. The increase envisaged in the other sectors are relatively small and it is assumed that they will be financed from their normal sources which include savings by agriculturists, by those engaged in arts and crafts and in trade and small industries, borrowings from unorganised or semi-organised lending agencies and also to an extent, from governmental and Reserve Bank assistance. Self-financing or financing from these diverse sources represents such a large proportion of the total resources that go into investment in these fields that it is difficult to attempt anything like a precise picture of the scope and possibilities in regard to each of these sources.

28. The problem, then, is regarding the finances required for the investment programmes for large and medium industries. Here again considerable guess-work is involved, but some broad estimates have been given in the chapter on Industries and Minerals. Of the total investment of Rs. 4,200 crores in the private sector Rs. 200 crores will, as mentioned earlier, be provided by way of transfer of resources from the public sector. Considerable assistance by the Reserve Bank to agriculture, small-scale industries and some select financial corporations dealing with the private sector is also envisaged. Moreover, external assistance to the private sector may be of the order of Rs. 300 crores. The trends of investment in the private sector during the second plan and the growing readiness of private enterprise to avail itself of the new opportunities being created by the development process warrant the hope that the financing of the order of investment proposed in the private sector will not present insuperable difficulties.

29. Ultimately, of course, the question is one of the adequacy of total resources available in the community for investment. The needs of finance both for the public and for the private sector have to be met from the common pool of domestic savings together with the quantum of external assistance forthcoming. Every effort has to be made to secure adequate availability in regard to both these.

EXTERNAL RESOURCES

30. The difficulties of forecasting trends in the balance of payments over a period of five years so as to arrive at an estimate of the external resources available for the Plan are, if anything, even greater than those that arise in connection with the estimation of internal resources. With this limitation, the broad picture that

emerges from a study of the recent trends in exports and imports and of the changes likely to occur during the third plan period in the level of domestic production and demand can be stated as in the Table below:

Table 3: Balance of payments estimates for the third plan period

(Rs. crores)

	annual average 1956-57 to 1958-59	1961-62	total for 5 years (1961-62 to 1965-66)	annual average (1961-62 to 1965-66)
1 exports	602	650	3450	690
2 invisibles (net) (excluding official donations)	101	45	120	24
3 capital transactions (net) (excluding fresh receipts of official loans and private foreign investment)	—22*	—150	—500	—100
4 foreign exchange resources available for imports (1+2+3)	681	545	3070	614
5 maintenance imports	728	730	3570	714
6 foreign exchange resources available for development imports (item 4—item 5)	—47	—185	—500	—100

31. Total export earnings over the third plan period are estimated at Rs. 3,450 crores, an average of Rs. 690 crores per year as compared to the level of Rs. 576 crores in 1958-59 and Rs. 645 crores in 1959-60. Exports in the first year of the third plan are estimated at Rs. 650 crores. With the increased levels of production expected in the third plan and the continued effort to increase exports, it should be possible to secure a steady rise in the subsequent years. In fact, the aim should be to reach a higher level of export earning than the total mentioned above.

32. Net receipts from invisibles have shown in recent years a downward trend partly because of the larger payments of interest on loans raised abroad and partly because of the decline in sterling balances. The total of interest payments on loans raised during the second plan and on loans to be raised in the third plan will be quite large. Taking these liabilities into account and considering the trends in respect of the other receipts and payments under this head, the net surplus on invisibles over the five year period may be placed at Rs. 120 crores, *i.e.* Rs. 24 crores a year on an average, as compared to an annual average of Rs. 101 crores in the years 1956-57 to 1958-59.

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*This figure excludes IMF drawings and PL 480 assistance, but includes capital movements on private account.

33. The repayments to be made in the third plan period against the obligations that will have been incurred by the end of the second plan will come to about Rs. 420 crores. In addition, some repayments may fall due in respect of the loans obtained in the third plan. Taking into account other capital transactions, mainly on private account, the net disbursements may be taken at Rs. 500 crores on capital account.

34. Deducting from the earnings on exports and invisibles the disbursements on capital account just mentioned, the balance left over for financing imports is Rs. 3,070 crores. As against this, the inescapable imports of raw materials, intermediate products, foodgrains by way of normal marketing, capital goods for replacement, etc. amount to Rs. 3,570 crores.

35. This means that there is a deficit of Rs. 500 crores—which is about equal to the repayments of loans falling due—to be met before we come to the requirements of the Plan itself. The gap in the initial years is expected to be particularly large because of the heavy repayments falling due in these years. The gap should narrow thereafter as larger outputs from the projects in hand, such as iron and steel, machine building, drugs and chemicals, etc. become available. It should not be forgotten on the other hand, that the import saving that takes place as a result of the increased levels of production within the country will be offset in part by the increased requirements for new types of imports as the economy develops.

36. The direct foreign exchange requirements of the investment programmes in the public and private sectors will depend to an extent on the phasing of the projects accepted for the Plan. Considerable work on this has to be undertaken in the next few months. On the basis of the maximum possible use of domestically produced capital goods and equipment—which depends to an extent on the availability of foreign exchange for import-saving projects in the earlier years of the Plan—it is estimated that the foreign exchange component of the Plan will be of the order of Rs. 1,900 crores. In addition, it will be essential to provide for imports of about Rs. 200 crores worth of components, balancing equipment, etc. needed to increase the production of capital goods within the country. Imports of this type cannot be related directly to the specific projects included in the Plan. They represent certain components not manufactured in the country and semi-processed and intermediate products required to increase the volume of capital goods production.

37. The total requirements of external assistance for the Plan thus amount to Rs. 2,600 crores, broken up as follows:

		(Rs. crores)
(1)	to cover the excess of payments over receipts as shown in para 30 ;	500
(2)	machinery and equipment for projects in the plan	1900
(3)	components, intermediate products, etc. for increasing the production of capital goods within the country	200
(4)	Total	2600

Items (1) and (3) may be regarded as balance of payments support. The need in respect of (1) can be met either by arrangements to convert the obligations falling due into longer term loans or by fresh borrowings. Assistance in respect of (3), it must be emphasised, is needed not for maintaining the current levels of production but for raising them progessively through increased production of capital goods.

38. To this total have to be added the estimated receipts by way of P.L. 480 assistance. A major aim of the Third Five Year Plan is the attainment of self-sufficiency in foodgrains by 1965-66. Food imports will, however, be required until domestic production increases adequately. The agreement signed recently with the United States is to provide 17 million tons of foodgrains valued at Rs. 608 crores. Part of these supplies is expected to be received during the current year, but we may take this entire import as related to the third plan period. On that basis, the total balance of payments deficit for the Third Plan would come to about Rs. 3,200 crores.

39. As to the prospects of securing external assistance of the order required, no prediction can be made. The Plan will have to be flexible and the commitments in regard to foreign exchange expenditure will have to be made only on the basis of external resources that are clearly in sight. The fact that the commencement and execution of projects both in the public and private sectors will depend upon the external assistance that is forthcoming highlights the need for keeping ready, well in advance, a sufficient number of projects that can be executed as soon as the necessary foreign exchange has been secured. Any delay in utilising the external assistance offered cannot but upset the schedule for increased production during and by the end of the third plan period.

40. It may be stated, finally, that the balance of payments difficulties the country is facing are not a temporary or fortuitous phenomenon. They are part and parcel of the process of development. For a period, the excess import requirements have to be

met from external assistance. But it is important to aim at a progressive reduction in the imbalance, so as to eliminate it within a foreseeable period. This is not to suggest that no inflow of resources from abroad would be desirable after this period. Normal capital inflows would continue, but reliance on special foreign aid programmes has to be steadily reduced and after a period of years dispensed with.

41. The above considerations bring out the need for building up the country's exports. Only on the basis of a steadily expanding volume of exports can a growing volume of imports be financed. Export promotion has, therefore, to be regarded as a major plank of economic policy. The economy has to provide a progressively larger surplus for exports. Whatever measures, fiscal or organisational, might be required for this purpose will have to be taken.

OTHER ASPECTS

42. The object of this chapter has been to present the broad lines along which the resources, internal and external, for the Plan could be raised. It is, of course, possible—and, to an extent unavoidable—that the degree of reliance on a particular method or source of raising funds may have to be adjusted in the light of the economic situation as it develops. It might be possible also to explore some avenues not mentioned. For raising some resources for the public sector it has been suggested, for example, that participation of private capital in existing or new public enterprises might be encouraged. This is being examined. Other methods of stimulating savings or of channelling them in the required direction may also be thought of. The crucial determinant of resources is the progress of production, especially of agricultural production which is the basis of the entire investment effort.

43. For a developing country, the search for resources has to be a continuing one, and this involves maximum and timely mobilisation of the surpluses that arise in the system. The techniques of taxation or of promotion and tapping of savings have to be varied as conditions change from time to time. The results obtained need to be reviewed and re-assessed periodically. There is equal need to secure economies in expenditure, both on plan schemes as well as in respect of the other expenditures of Government. This is not a question of retrenchment or economies in the limited sense; it involves a scrutiny of the end-results sought and of the ways and means of achieving these at minimum cost. The Plan involves large outlays on building and other civil works. Expenditure on these items has to be kept to the minimum, through simplification of

design, economy in the use of scarce materials and rigorous avoidance of ornamentation. In the private sector too, the emphasis must be on keeping down costs. This is important both for holding the level of domestic prices and for maintaining and improving upon the country's competitive capacity in foreign markets.

44. To sum up: the question, basically, is how the investment effort in the economy can be maximised. This depends on how efficiently the production effort is organised and how well the fiscal and other devices for mobilising resources work in practice. The inadequacy of resources relatively to needs is inherent in the fact of underdevelopment, and effective mobilisation and use of the resources available is the very basis of planned development. What is essential is adequate preparedness for the organisational tasks involved.

CHAPTER V

POLICY AND ORGANISATION

I. ADMINISTRATION AND PUBLIC COOPERATION

BOTH in the First and Second Plans, a number of suggestions were made for bringing about improvements in administration and securing larger public participation in carrying out plans of development. The success of the Third Plan will rest very largely on the efficiency with which it is implemented. During this period, steps have to be taken not only to secure the full gains of the investments made in the First and the Second Plans, but also to undertake large investments in the development of industry, transport and power and in education and other social services. Among the most important conditions to be fulfilled for the country to sustain a large plan of economic and social development are the securing of high standards in administration, ensuring that the public enterprises are carried out efficiently and yield the maximum results feasible keeping the construction programmes and costs to the minimum and securing the fullest public cooperation in different fields of national development. These aspects are considered in this section.

ADMINISTRATIVE EFFICIENCY

2. The need for securing efficiency and speed in execution and widespread confidence in the integrity of the administration at all points affecting the general public have always been stressed as vital problems in economic development. With increase in the tempo of development activities and in the functions of Government these aspects of administrative reform have assumed even greater urgency. The principal objectives to be realised in public administration are:

(1) formulation of policies in clear-cut terms by Government and ensuring continuity in giving effect to them;

(2) clear assignment of responsibility for implementation with full appreciation of the objectives to be achieved at every level including Minister, Secretary and Head of Department;

(3) ensuring everyday efficiency with speed and prompt disposal, including (a) proper training of personnel, (b) simplification of procedures, and (c) effective supervision of work at each level;

(4) ensuring in respect of important construction projects that the best results accrue for the expenditure incurred and there is integrity and economy at all points; and

(5) ensuring right public relations and cooperation from and with the public, including due courtesies and consideration for all citizens.

From the experience gained in recent years and from a recent review of the subject which has been undertaken at the Centre, a number of suggestions have emerged. In this section it is proposed to refer to some of these briefly.

3. In the present functioning of the administrative system there are certain factors which tend to slow down the pace of execution. To these special attention needs to be given. Thus, there should be much greater emphasis on fixing specific individual responsibility for producing results within agreed time-schedules and in accordance with approved policies and programmes. Certain administrative practices have on the whole inhibited the exercise of such responsibility. For instance, secretariat departments have tended to assume responsibility for an increasing amount of original work. Their primary concern should be with matters of policy, supervision of administration and enforcement of standards. Except for marginal cases, executive tasks should be left to be carried out by departments or other authorities designated for the purpose. It is essential that executive departments, corporations and government companies should be strengthened and enabled to function more effectively on their own responsibility. In the second place, within the field assigned to a public servant by law or by rule or by executive order, there should be no interference with his decisions. Where an officer fails to discharge his duties satisfactorily, suitable action may be taken. To meet cases in which intervention by Government or by higher authority is felt to be in the interest of administration the law or rules or executive instructions under which the powers are delegated should be amended. In the third place, inter-departmental conferences, consultations and references before action can be commenced should be drastically reduced as these tend to diffuse responsibility and reduce initiative on the part of responsible agencies.

4. The business of government has expanded greatly and on account of pressure at the higher levels sufficient guidance is not always available to the middle grade personnel in each department. It is of the greatest importance that by giving special attention to their training these grades of personnel should be built up, so that they are able to carry an increasing share of responsibility for day-to-day administration.

5. If the larger objectives of administration are to be achieved, as was stressed in the First Plan, there is need within the administration itself for continuing leadership in securing steady improvement in administrative efficiency and standards. This leadership must come largely from the higher ranks of the public services. A proposal seeking to give effect to this idea is at present under consideration at the Centre. In the State the object could be secured if a group of senior officials, including the Chief Secretary, were required to function as a Committee on Administration which reports to the Chief Minister and the State Cabinet and is charged with continuing responsibility for proposing measures for improvement in the standards of administration and for reviewing the action taken by various departments.

6. Success in carrying out programmes of rural development turns very largely on the efficiency and integrity of the administration at the district, block and village levels. In several States, the problems of district administration are being studied and steps are being taken to strengthen it. With the setting up of popular bodies specially at the block level, new possibilities of mobilising local manpower and other resources have now arisen. However, as has been suggested in the section on Community Development, it will be essential to ensure that during the third plan panchayat samitis in the blocks in fact place their main emphasis on increase in agricultural production rather than on programmes for providing amenities and that they function effectively as agencies for fulfilling the Plan in their respective areas. Subject to advice and considerations of overall priority the ultimate responsibility for development work in the block should be that of the block panchayat samiti and this aim should be progressively pursued.

7. Raising the levels of administrative efficiency is a continuing process. The administration has to undertake tasks of increasing complexity and magnitude and in many fields there is need for evolving new methods. Systematic work studies and an attitude of experiment can make a valuable contribution in this direction.

PUBLIC ENTERPRISES

8. The scope of the public sector has increased steadily during the first and the second plan. Although the contribution of public enterprises to the national income is quantitatively small at present, it has to become much more significant in the Third Plan. The public sector includes an extensive range of enterprises, such as industrial undertakings, irrigation and power projects, railways, road transport, air transport, shipping, etc. The capital at charge of the Railways has risen from about Rs. 970 crores in 1950-51 to

about Rs. 1,560 crores in 1960-61 and is expected to increase to about Rs. 2,300 crores at the end of the third plan. The total capital employed in electricity undertakings in the public sector, which stood at Rs. 70 crores in 1951 and at Rs. 330 crores in 1956, will be about Rs. 1,700 crores at the end of the third plan. A recent study of public sector enterprises shows that 19 industrial undertakings of the Central Government which have been completed and are in full operation have a total capital of about Rs. 171 crores, while 7 major undertakings, including Hindustan Steel, which are still in the construction stage, have a total capital of Rs. 562 crores. Apart from these enterprises and such long-established undertakings as the Railways and Posts and Telegraphs the total capital employed in 20 other undertakings of the Central Government amounted in 1958-59 to about Rs. 175 crores. There are, in addition, a large number of undertakings managed by State Governments.

9. Several State undertakings are already earning profits and the general policy has been accepted that the maximum economic returns should be secured from all public enterprises, whether these are operated by the Central or State Governments directly or through corporations and companies. Thus, in the Third Plan the surpluses of public enterprises will play an increasing part in financing economic development. To ensure that these surpluses will be fully realised and will become available for development in accordance with the national plan, action has to be taken along two main directions. In the first place, the managements of public enterprises should have sufficient freedom of action and should be able to function in all their operations with considerable speed. There should be adequate delegation of administrative and other powers from the Government to the Boards of enterprises, from the Boards to the General Manager, and at different levels within the management itself. This aspect has received attention in the reports of the Estimates Committee of Parliament and in other enquiries. In the second place, there is need for systematic audit of physical performance in all public enterprises, both in the construction stage and subsequently. In the construction phase, it is specially necessary to ensure that the physical assets created are commensurate with the original estimates and designs. For this purpose it is suggested that there should be independent units which would carry out test checks of performance in a limited number of cases. As a rule, these units might exist within the projects themselves, so that they could assist the responsible authorities in enforcing efficiency, economy and integrity at every point. In this connection, it is also necessary to emphasise that all public sector undertakings should give special attention to the development of suitable tests or indicators of effi-

ciency and productivity and should improve upon them progressively.

ECONOMY IN CONSTRUCTION COSTS

10. In many fields of development, construction costs account for a substantial proportion of the expenditure. The building component of the Second Plan in the public sector was estimated at about one-sixth to one-seventh of the total outlay. In November 1958, the National Development Council emphasised that with a view to achieving economy in construction costs fewer buildings should be constructed than had been initially contemplated in the Second Plan and that the buildings proposed to be put up should be constructed on a cheaper basis. The Third Plan involves much larger outlays than the Second and the need to secure the largest possible results in relation to the expenditure incurred is greater than ever. The question of securing economy in construction has been considered both by Central Ministries and State Governments, and the suggestions which have emerged from their studies and observations are set out below:

(1) In each sector, the programme for the construction of buildings should be limited to requirements which are inescapable. The building projects which are approved should be executed at minimum cost consistent with functional needs and, to the extent possible, temporary or semi-permanent construction should be resorted to.

(2) The plans of States and of the Central Ministries should be accompanied by a careful appreciation of their total construction programme and the requirements of materials. Materials budgeting leads to considerable economy, but can be undertaken in a satisfactory manner only if the programme of construction is established sufficiently in advance to facilitate detailed planning.

(3) Large economies are possible through standardisation, adoption of improved techniques and control or elimination of items which do not result in useful additions to the building. Type designs suited to the conditions of different States should be evolved, specially for buildings required in large numbers, such as schools, hostels, storage structures, hospitals, and office and residential buildings. Cost data in respect of these and other categories of buildings should be carefully analysed and the main cost components should be reviewed at suitable intervals. Economies should also be secured by avoiding construction in congested localities where costs of land are high.

(4) Cost estimates of buildings are often exceeded. Apart from changes in wages and in the cost of materials, other elements which account for increases in costs are defects in estimation and execution and in the administrative procedures connected with the settlement of final claims. Also, frequently at the planning stage, enough attention is not given to the working out of all relevant details. Subsequent deviations and the introduction of additional items prove wasteful.

(5) Work studies of construction activity which have been recently undertaken suggest the need for reviewing the working of various public works organisations, so that they are suitably equipped to carry out construction programmes under the Third Plan more efficiently and with greater economy and speed than at present. They will then be better able to bring about the improvements in the organisation of construction work at site, to ensure more economic use of materials, and to raise the productivity of labour.

(6) Where the agency of contractors is utilised, savings in costs can be effected through the development of the site in time, preparation of detailed drawings, satisfactory arrangements for the issue of key materials and prompt payments.

(7) Excessive dependence on contractors should be avoided by organising work departmentally in areas where contractors are not available or tend to quote very high rates, payment to departmental labour being made on the basis of outturn of work. Labour cooperatives and voluntary construction agencies which are equipped for construction work should be encouraged and assisted in taking up construction works. Well-organised labour cooperatives which are able to obtain work continuously can also do much for the welfare and training of their members.

(8) Steps should be taken to improve the productivity of labour through facilities for better training. Special efforts should be made to upgrade the existing levels of skill in the building industry.

(9) To avoid high prices in respect of materials which are in short supply or have to be imported, in suitable cases the Government should consider the possibility of purchasing such scarce materials on its own and making them available to the contractors.

11. It has been suggested to State Governments that there should be inter-departmental committees to watch the progress made in achieving economies in construction costs. A committee on these lines is also proposed to be constituted at the Centre. Through the establishment of such machinery and by following up the various suggestions mentioned above, it should be possible to insist that when a development programme or project comes up for general approval the construction element is also fully considered. This will further ensure that construction programmes in each field are phased so as to lead to the largest measure of economy.

PUBLIC COOPERATION

12. From the beginning of the first plan, a great deal of stress has been laid on securing public cooperation in carrying out programmes of national development. In particular, it has been felt that voluntary organisations could make a valuable contribution in activities which bear closely on the welfare of local communities. This expectation has been realised in no small measure. Numbers of voluntary workers, specially women, have come forward to accept new responsibilities. To an extent it has been possible for the Central and State Governments to assist voluntary organisations in specific programmes of work. This has enabled them to make trained and full-time workers available for carrying out different activities. The National Advisory Committee for Public Cooperation, which includes representatives of a number of leading voluntary organisations such as the Kasturba Gandhi National Memorial Trust, the Harijan Sevak Sangh, the Gandhi Smarak Nidhi, the Bharat Sevak Samaj, the Indian Conference of Social Work, the Indian Council for Child Welfare and others, has provided guidance in programmes of public cooperation and serves as a forum for the consideration of problems relating to public participation in development programmes. An allotment of Rs. 10 crores has been made for continuing schemes and for new schemes to be formulated on the basis of the recommendations made by the National Advisory Committee for Public Cooperation. It is also proposed that pilot schemes and research studies should be undertaken with a view to evolving and demonstrating methods of enlarging public cooperation in development programmes.

13. Several voluntary organisations have done useful work in urban areas. Slum areas in cities and towns offer scope for fruitful activities in the field of public cooperation, for instance, in providing basic amenities such as drinking water, shelter, health, sanitation etc. In this connection, a number of useful schemes have been undertaken by municipal bodies like the Delhi Corporation, the Central Social Welfare Board, the Bharat Sevak Samaj and the

Indian Conference of Social Work. The projects which have been carried out suggest that community development programmes can evoke a great deal of practical participation in urban areas.

14. There are also a number of voluntary organisations which have devoted themselves to work in rural areas. The Welfare Extention Projects undertaken by the Central Social Welfare Board and the State Social Welfare Boards, which form part of the community development movement, have given the opportunity to large numbers of women workers to serve in rural areas. The work of well-known organisations like the Sarva Seva Sangh, the Harijan Sevak Sangh, the Bharatiya Ádimjati Sevak Sangh and the Kasturba Gandhi Memorial Trust lies mainly in the villages. Through its Lok Karya Kshetra programme, the Bharat Sevak Samaj has endeavoured to place full-time and trained voluntary workers in selected development blocks to work with local panchayats and co-operatives in stimulating the fuller use of local resources. The Community Development movement and the programmes of minimum amenities for rural areas, to which reference has been made earlier, provide a vast field for constructive service by local workers and voluntary organisations.

15. In recent years, labour and social service camps have begun to play a significant role as a means for bringing number of young men and women into nation-building activities. It is reckoned that since the beginning of the second plan, the National Cadet Corps, the Auxiliary Cadet Corps, the Bharat Scouts and Guides, the Bharat Sevak Samaj and other organisations have arranged more than 5.000 camps in which about 500,000 young men and women have participated. The National Cadet Corps have expanded and now includes about 50,000 officers and nearly 200,000 cadets. The strength of the Auxiliary Cadet Corps has grown from about 300,000 at the end of the first plan to over 800,000.

16. As explained in an earlier section, voluntary organisations which are equipped for construction work can play a useful part in reducing construction costs. The work done by the Bharat Sevak Samaj at the Kosi, Nagarjunasagar and elsewhere has shown that the participation of voluntary bodies can make for economy and provide satisfaction to workers, besides augmenting resources for providing local amenities. Work on these lines should be extended in different parts of the country.

17. The number of Planning Forums in universities and colleges has increased to over 400. These Forums have organised seminars on various aspects of planning, undertaken social and economic surveys of villages, participated in activities such as small savings,

slum clearance and others and, in general, they have helped to bring national goals closer to the student community.

18. Programmes of publicity for the Plan undertaken by the Central and State Governments, specially in rural areas, have been helpful in making the aims of planning at the national, State and local levels more widely understood.

19. In every sector of development, there are many ways in which public participation can be enhanced. It should be the common purpose of official agencies, local self-governing bodies, voluntary organisations, educational institutions, trade unions and professional and other associations, to identify the main needs of each local community and find fields of common endeavour, thus enabling the people of each area to achieve greater cohesion and a common social outlook.

2. UTILISATION OF RURAL MANPOWER

20. During the third plan agricultural production has to increase twice as fast as it did during the decade 1949-50 to 1958-59. This part of the Plan, therefore, calls for an intensive and concentrated effort. In the main, it is through the participation of millions of peasant families in village production plans and in large-scale programmes of irrigation, soil conservation, dry farming and the development of local manurial resources that the major agricultural objectives are to be realised. The question, therefore, is how, in the conditions prevailing in India, the manpower resources available in rural areas can be effectively harnessed for development. It is recognised that over large parts of the country, on account of dependence on rainfall and the small and scattered character of holdings, the agricultural economy *by itself* is not remunerative and does not provide adequate opportunities for continuous work throughout the year. Moreover, as the Second Agricultural Labour Enquiry and the results of studies undertaken by the Programme Evaluation Organisation bear out, the problem is further accentuated on account of the rapid growth of population. The two main aims to be realised therefore, are that much more work should become available to all who are willing to work, and that the available manpower should be used to the greatest extent possible for increasing agricultural production and creating community assets. Capital formation in this manner is essential in under-developed economies.

21. A lasting solution of the problem of using the available manpower has to be sought through the universal adoption of scientific agriculture and the diversification and strengthening of the rural

economic structure. Programmes along these lines form part of the Third Plan. For the better utilisation of manpower resources, it is further proposed that there should be comprehensive works programmes in rural areas. The preparation of the works programmes of every development block is an essential part of its five year plan. The block plan includes all the works to be undertaken by different agencies through the block organisation, such as programmes included in the schematic budget under the community development scheme, programmes falling within the general plan of the State under agriculture, animal husbandry and cooperation, programmes for large and medium irrigation projects, road development, etc. Such a block plan will in turn be split into village plans, and in this form it should be made widely known to all families. It is envisaged that the works programme in any area should ordinarily comprise five categories of works:

I. Works projects included in the plans of States and local bodies which involve the use of unskilled and semi-skilled labour.

II. Works undertaken by the community or by the beneficiaries in accordance with the obligations laid down by law.

III. Local development works towards which local people contribute labour while some measure of assistance is given by Government.

IV. Schemes to enable village communities to build up remunerative assets.

V. Supplementary works programmes to be organised in areas in which there is a high incidence of unemployment.

22. *Works in category I.*—Many projects calling for large amounts of unskilled and semi-skilled labour are included in the plans of States, for instance, irrigation and flood control projects, land reclamation schemes, including water-logging and drainage and the reclamation of saline lands, afforestation and soil conservation schemes, road development projects, etc. It is considered that if these projects are to provide the maximum employment to the people of each area, they should be carried out in close cooperation with the local block organisation, which includes the panchayat samiti and the village panchayats. Where possible, one or more labour cooperatives should be formed. Such labour cooperatives should maintain supplies of tools, obtain contracts from the Departments concerned and arrange for the execution of works by enabling batches of persons from different villages to work at convenient distances from their homes.

23. Works programmes on these lines should be planned for execution during the slack seasons, their planning being taken in hand well in advance so as to ensure the necessary coordination with the block development organisation concerned. In all cases of works to be undertaken in villages, wages should be paid at the village rates. The services of panchayats, and of cooperatives and other voluntary organisations should be fully utilised. Within the block the responsibility for carrying out the works programmes should be placed on the Block Development Officer and the block extension team. In giving effect to works programmes in which villagers have to do the work in place of contractors, they should be allowed more time than is commonly done, and payment and measurement of work should be prompt. If it is found that certain types of workers required for these works will not be locally available in sufficient number, arrangements should be made for importing such labour before commencing construction. It is suggested that State Governments might also investigate the possibility of organising a small task force of trained workers who could be assigned for short periods to blocks which take up works programmes. In this way advantage may be taken of the experience gained in different parts of the State and the execution of works may be organised with greater efficiency.

24. *Works in category II.*—Both under the first and the second plan there were instances of delays in the utilisation of irrigation facilities because field channels were not constructed by beneficiaries. Similarly, there were instances of failure to maintain minor irrigation works. In this situation, it became necessary to consider whether certain obligations should not be placed by law on local communities and on beneficiaries. In most parts of India, obligations relating to the maintenance of field channels were long in existence and were entered in the revenue records. As these customary obligations were tending to fall into disuse, there was need for giving greater definiteness to them through legislation. In the legislation of some States obligations have been placed on beneficiaries for the maintenance of minor irrigation works, for the construction of field channels and also for contour bunding.

25. The obligations to be undertaken in respect of irrigation works are as follows:—

(1) *Major and medium irrigation works*

(a) construction stage: construction of field channels within a specified time by those whose lands will receive irrigation;

(b) maintenance: the annual maintenance in an efficient condition of the field channels by the beneficiaries.

(2) *Minor Irrigation*

(a) desilting and maintenance of canals;

(b) maintenance of bunds of tanks; and

(c) desilting the beds of tanks (unless they have been long neglected and must be taken up by Government directly.)

It is proposed that legislation should confer power on village panchayats to enforce these obligations on the part of beneficiaries. If the latter fail to carry out the works in time, the panchayats should carry them out and realise the cost. In the event of the panchayat failing to carry out the works, the Government or, on its behalf, the panchayat samiti of the block may arrange for their execution, the cost being recovered eventually from the beneficiaries.

26. In view of the importance of contour-bunding and soil conservation for increasing agricultural production, specially in unirrigated areas, and the need for special measures of afforestation and conservation in the catchment areas of river valley projects, it is envisaged that action should be taken along the following lines:—

(1) The Government should have power under the legislation to frame a scheme of contour bunding for the basin of a river or a stream or for a group of villages and notify it for objections. After the objections have been considered, the scheme should be adopted with such modifications as may be necessary;

(2) in any approved scheme the Government should bear the cost of (i) afforestation of the catchment areas, and (ii) works common to more than one village;

(3) within a village, for works common to the village as a whole the cost should be levied from the beneficiaries in proportion to their holdings. The beneficiaries may be given loans by the Government or the cooperative, repayment being spread over a period of 5 to 10 years; and

(4) works in individual holdings should be carried out by the beneficiaries.

Under (3) and (4) above there should be provision for carrying out works and recovering the cost in the same way as suggested for irrigation schemes.

27. *Works in category III.*—An important programme under the Third Plan concerns the provision of certain amenities in rural

areas. These amenities are: (a) supply of drinking water, (b) roads linking each village to the nearest main road or railway station, and (c) the village school building which may also serve as a community centre and provide facilities for the village library. Under this programme, for which a provision of Rs. 50 crores has been made in the Plan, each village is to be enabled to provide itself with all these amenities, contribution being made by the local people mainly in the form of labour and to the extent possible in the form of money. The minimum amenities programme for the third plan is the development of the local works schemes undertaken during the first and second plans which, generally speaking, were appreciated and elicited participation from local communities. The new programme is intended to be carried out in all rural areas. Until all the villages are covered by the community development programme, however, it is proposed that a relatively larger proportion of the funds may be reserved by State Governments for (a) backward areas, (b) areas not covered by the community development programme, (c) pre-extension blocks, and (d) blocks which have completed the first and the second stage of the community development programme. It is proposed that the amenities mentioned above should constitute the first charge on the amounts made available for a development block and that any other items should be taken into consideration only when the basic requirements have been met for all the villages in the block.

28. *Works in category IV.*—This group includes schemes which will enable the village community to build up remunerative economic assets belonging to the village as a whole, such as village tanks, fisheries, fuel plantations and common pastures. These programmes have to be worked out in terms of the requirements of the development block as a whole as well as for individual villages, execution being arranged through the latter. The Departments concerned will have to provide the necessary technical assistance and such supplies in kind as seedlings for fuel plantations or fingerlings for fisheries schemes. The general aim is that through programmes under this category every village panchayat should secure a certain minimum annual income.

29. *Works in category V.*—In April 1959, the National Development Council approved a suggestion that in areas which have a high incidence of unemployment there should be special works projects which should be organised by local authorities and State Governments, wages being paid at village rates. It is necessary to gain practical experience in organising such projects both in the districts recently selected for intensive agricultural development and in some other rural areas which have heavy pressure of population. These

pilot projects are to be undertaken during the last year of the second plan with a view to making suitable provisions in the Third Plan.

30. *Labour contribution for community assets.*—In some States legislation relating to panchayats permits the village panchayat to prescribe, within a limit laid down by law, the number of days in the year for which free labour should be given by each male adult in the community. The object of this legislation is to facilitate the building up of community assets. State Governments are at present being consulted on two questions, namely, (1) whether the number of days or hours of works prescribed may be increased so that community assets of appreciable value can be built up, and (2) how best, with the maximum consent of the community, this system can be brought into operation on a large enough scale.

3. BALANCED REGIONAL GROWTH

31. Balanced development of different parts of the country and the stress on extending the benefits of development to the more backward regions are part of the accepted policy of Government as outlined in the Second Five Year Plan and the Industrial Policy Resolution of April 1956. These objectives were to be realised primarily through the implementation of the programmes embodied in the Plan. From time to time, however, additional programmes are added to States' plans which are earmarked for areas with special problems. The following were the principal measures for giving effect to this approach to balanced regional development:

(1) the priority given to programmes like those of community development, irrigation, especially minor irrigation, local development works, etc., which spread over the entire area within the shortest possible time;

(2) provision of facilities such as power, water supply, transport and communications, training institutions, etc., in areas which were lagging behind industrially or where there was greater need for providing opportunities for employment;

(3) programmes to be undertaken for expanding village and small industries; and

(4) in the location of new enterprises, whether public or private, consideration to be given to the need for developing balanced economy for different parts of the country. In particular, this aspect was to be kept in view where location of an industry was not determined almost entirely by the availability of raw materials or other natural resources.

In addition to the steps mentioned above, the Second Plan envisaged that an effort should be made to promote greater mobility of labour between different parts of the country and to organise schemes of migration and settlement from more to less densely populated areas. It was also suggested that there should be continuous study of the problem of regional disparities and suitable indicators of regional development should be evolved.

32. Regional development is often thought of in terms of States. This tendency to identify 'States' with 'regions' is natural because planning by State Governments has an important role and the programmes included in the plans of States and implemented by them have a close bearing on the levels of living of the people. Within each State, however, there are areas which are more underdeveloped than others and it will be correct to say that in preparing their plans State Governments attempt to include special programmes for such regions within the limits of the available resources.

33. The approach outlined above has been broadly kept in view in our Plans. In reviewing the experience of the First and Second Plan it may be useful to consider briefly three aspects, namely, (1) the role of plans of States which form part of the national plan and of the assistance provided by the Centre for the implementation of these plans, (2) additional programmes undertaken in certain selected areas and (3) location and dispersal of industries.

ROLE OF STATE PLANS

34. The plans of States include most of the development programmes which bear directly on the general welfare of the entire population. Thus, agriculture, community development, village and small industries, irrigation and power and social services are provided for almost entirely in the plans of States. In formulating these plans, apart from the resources which a State can provide, the main considerations have been the size of the unfinished programmes carried over from one plan period to the next, the possibilities of increasing production, the administrative and technical personnel at the disposal of the State, and the pace of development actually achieved. However, in framing the programmes for agriculture, irrigation, power etc., the special needs of backward areas are kept in view as far as possible. Over the first two plans, State plans have together accounted for a total outlay of Rs. 3,800 crores of which over Rs. 2,200 crores have been by way of assistance from the Centre. River valley projects have formed an important part of the plans of several States. Very large investments are being made in multipurpose projects like the Hirakud, Kosi, Chambal, Rihand, Nagarjunasagar and Bhakra-Nangal. What has to be specially emphasised

is that, in deciding to undertake these projects, the need to bring economic security and prosperity to the scarcity affected areas which would be benefited by them was invariably an important consideration. Similar considerations also apply to minor irrigation and allied programmes.

PROGRAMMES FOR SPECIAL AREAS

35. In addition to the development programmes provided for in the plans of States, from time to time special programmes have been formulated for particular areas which were faced with difficult problems. Thus, in 1953-54, a programme of permanent improvements in scarcity areas was taken in hand in certain specified areas of Andhra Pradesh, Assam, Bihar, Bombay, Madras, Mysore, Rajasthan, Uttar Pradesh and West Bengal. The total outlay incurred has been about Rs. 40 crores. The programme included medium-sized as well as minor irrigation schemes, construction of embankments for flood protection and land reclamation and contour-bunding schemes. In 1957, when scarcity conditions developed in a number of States, after a special investigation, additional development programmes were taken up.

36. In determining the outlays for the annual plans of States, attention is invariably given to the less developed areas which require special attention, such as Vidarbha and Marathwada, the eastern districts and other backward areas in Uttar Pradesh and hill areas in Uttar Pradesh and Punjab. In respect of hill areas, the States concerned have established machinery for consulting local representatives and, with their assistance, are drawing up developmental plans which will be flexible in their operation and confer the greatest benefit in the conditions prevailing in these areas. In States like Madhya Pradesh, Orissa and Assam, in areas inhabited by scheduled tribes, special programmes are undertaken for the benefit of the local population. These include roads and communications, multi-purpose development blocks, forest co-operative societies and measures to check shifting cultivation. Reference may also be made here to an enquiry undertaken sometime ago by the Ministry of Food and Agriculture to ascertain areas in different parts of the country with specially low income levels and acute unemployment. The Ministry of Food and Agriculture has also been engaged in studying the problems of inaccessible areas in different States.

LOCATION AND DISPERSAL OF INDUSTRIES

37. It was pointed out in the Second Plan that often the disadvantages of comparative costs were only a reflection of the lack of basic development. Once this was taken in hand, initial handicaps

would progressively disappear. A wide diffusion of development nuclei was, therefore, essential from this point of view. Accordingly, it was proposed that these considerations should be kept in view when considering the location of projects in the public sector and also in the administration of licensing policy for new industrial units in the private sector. Several important industrial projects, such as the steel plants at Bhilai and Rourkela and the Heavy Electrical Plant at Bhopal, though their location was determined on the basis of expert study and in relation to economic considerations, have in fact been sited in areas which were hitherto industrially backward. Other similar areas are being benefited by the development of mineral deposits, hitherto unexploited or only partially developed, *e.g.*, the lignite deposits in Arcot, the bauxite deposits at Salem and the lead-zinc and copper deposits in Rajasthan.

38. While in the selection of sites for basic capital and producer goods industries proximity to raw materials and other economic factors generally have to be decisive, there is a wide range of consumer goods and processing industries in which it is possible to foster a regional pattern of development. Examples are cotton textiles, sugar, light engineering industries such as bicycles, sewing machines, electric motors, radio receivers, the manufacture of finished products from aluminium ingots, plastic moulding powder and further processing of intermediates and bulk drugs. In the case of light engineering industries the decision to sell steel at a uniform price at all rail-heads is an important step taken during the second plan towards securing their greater dispersal. The growth of the sugar industry in the southern portion of the country has been influenced by the policy followed in regard to the licensing of new units and the release of foreign exchange for import of equipment. Similarly, new cotton textile mills have been encouraged to come up in areas in which the industry had not so far developed.

39. To some extent the development of new processes or the use of new raw materials can assist in spreading industry. Thus, a beginning has been made with the use of bagasse as a raw material for paper and this should lead in course of time to the setting up of paper factories in sugar-cane growing areas. In Uttar Pradesh a synthetic rubber plant is being established on the basis of alcohol which was previously being used to a limited extent for admixture with petrol. A pilot scheme, which is being carried out at the National Metallurgical Laboratory for the production of pig iron in low-shaft blast furnaces, holds out the possibility of iron production in small units in parts of the country which have deposits of low-grade coal.

40. As regards village and small-scale industries, these are spread all over the country and the various forms of assistance provided by the Central and State Governments are made available in all areas according to the programmes which are undertaken. In locating industrial estates the need for wider dispersal is being increasingly stressed.

POLICY IN THE THIRD PLAN

41. The measures taken in the Second Plan with a view to balanced regional development will be continued under the Third Plan. The plans of States during this period will account for a total outlay of about Rs. 3,650 crores, which will be roughly equivalent to the combined outlay in the States under the First and the Second Plans. The amount of Central assistance to States is expected to be of the order of Rs. 2,500 crores. It is intended that in drawing up their plans State Governments should give special attention to their less developed areas and, in particular, ensure that there are adequate administrative and other arrangements for implementing programmes approved for these areas.

42. The Third Plan includes two programmes of considerable importance to rural areas from this point of view. The first programme concerns the provision of facilities for universal education for the age group 6—11 years, to which reference is made later. The second is the programme for providing certain basic amenities to all rural areas, namely, supply of drinking water, roads linking each village to the nearest main road or railway station and a building for the village school which will also serve as a community centre.

43. The following are some factors to which it is proposed to give special attention in the Third Five Year Plan when detailed State and regional plans are formulated:

(1) *Industrial location and development areas.*—In the Third Plan efforts to secure the dispersal of industries will be continued and special attention will be paid to the promotion of small and cottage industries in rural areas. It is proposed that in the programme for industrial estates greater emphasis should be placed on securing their location in small towns and in semi-rural areas. A scheme has also been put forward for establishing in industrially backward regions "Industrial Development Areas" where basic facilities like power, water, etc., would be provided and factory sites developed and offered for sale or on long lease to prospective enterprises. Licensing policies should be employed to the extent feasible to secure the dispersal of a wide range of industries.

(2) *Education and Training.*—The expansion of technical training facilities has an important contribution to make in the development of the less advanced regions. In these areas, however, the general educational base is frequently inadequate. From this aspect the programme of free and compulsory education at the primary level has special importance. It is contemplated that suitable financial arrangements should be made to ensure that the resources earmarked for the development of primary education in the less developed areas are effectively utilised by them. In the expansion of technical education for technologists, engineers, doctors, agricultural specialists and others, it is already an accepted policy that these facilities should be distributed throughout the country. It is further proposed that requirements of the population of relatively less developed areas in which new industrial projects may be located should be particularly borne in mind by State Governments when formulating programmes for technical, vocational and secondary education.

(3) *Complementary programmes for development.*—Suitable steps will have to be taken to ensure that major projects located in backward regions contribute fully to the development of those regions. The benefits of a major project will accrue in greater measure to the population of the region in which they are located if certain related or complementary programmes and schemes are undertaken. The major project should be the nucleus, as it were, of an integrated programme for the development of the region as a whole. Round a new irrigation project, for instance, a whole group of schemes aiming at development of improved agriculture, horticulture, market centres and processing and other industries could be taken up. Similarly a steel project could lead on to schemes for setting up industrial estates for housing medium and small scale industries of the engineering type, schools and technical training centres and for developing other allied activities.

(4) *Possibilities arising from technological advance.*—Development potentials of different regions need to be studied in relation to the possibilities which arise from advances in technology and science. For example, the handicaps of certain regions arising from lack of deposits of coal and oil may be materially reduced as hydel power and atomic energy become available. From a long-term point of view this factor in regional development is of great importance. Similarly, improvements in transport are already reducing the remoteness of certain regions and enabling them progressively to share in the general economic advance.

(5) *Labour mobility.*—In some parts of the country, considerable mobility of labour exists. For instance, labour from Bihar works in the tea plantations in Assam and the labour from Rajasthan works

on roads and irrigation projects in the Punjab and elsewhere. The redeployment machinery set up at the Centre and in the States for different areas assists movement of such personnel to the less developed areas. Nevertheless it remains true that the scope for the transfer of large numbers of unskilled workers from the more densely to the less densely populated parts of the country is relatively limited. At the same time, as is well known, skilled and semi-skilled workers can move from one area to another with much less difficulty and are absorbed much more readily where the local economy is developing rapidly. It is, therefore, proposed that in areas of high density, an attempt should be made to expand technical training programmes to the utmost extent feasible and to assist trained workers in obtaining employment opportunities elsewhere. It is suggested that State Governments may give attention to this aspect when drawing up plans for such areas.

(6) *Quality of administration.*—The quality of administration and availability of entrepreneurial ability and technical knowledge are important in different regions. They are a part of the equipment of each region to which a measure of attention needs to be given.

44. Balanced economic development implies that the pattern of investment is so devised that the potential of each region for development is fully utilised and that disparities in levels of living, particularly in respect of services like education, water supply and roads are progressively reduced. In an underdeveloped economy, advance towards this objective may be somewhat slow in the early stages of development because of the urgent need to secure the maximum increase possible in national income in relation to the resources available. However, as resources increase and development programmes are enlarged and diversified, stimuli to growth will begin to operate over a wider area and levels of living will improve in all regions. In this phase of rapid growth of the economy, the question of balanced development has to be viewed from the angle of the relative rate of advance realised in the different parts of the country. It must be realised, however, that such a policy can yield results only over a fairly long period.

STUDIES IN REGIONAL DEVELOPMENT

45. For assessing the advance made towards balanced regional growth, it is necessary to determine the relative rates of development in different areas in terms of selected indicators. A number of indicators have been proposed for the States including indices of agricultural production, industrial production, investment, unemployment, irrigated area, road mileage, primary and secondary education and occupational distribution of population. Studies in the estimate

of State income have been undertaken by the statistical departments of a number of States. The stage has, however, not yet reached when it is possible to present comparable estimates for different States. The work already done in this field is being reviewed by a technical working group. In connection with these studies, the main task is to collect the requisite basic data at the State level. This has been taken in hand in several States.

46. While compilation of data in respect of selected indicators would be useful, it will be necessary to carry out surveys for identifying the problems of different regions and assessing their needs and potentialities. Technical surveys in various fields are undertaken by various agencies of Government, such as the Geological Survey of India, the Bureau of Mines, the Oil and Natural Gas Commission and the Central Water and Power Commission. Techno-economic surveys of most of the States and Union Territories have been undertaken by the National Council of Applied Economic Research, and their findings are expected to be available in the course of the next year. The Planning Commission also initiated through the Indian Statistical Institute regional studies in Mysore and Kerala. The Benchmark surveys and other studies of the Programme Evaluation Organisation are also providing much information regarding the problems of rural areas at various levels of development. The city surveys and other studies organised under the auspices of the Research Programmes Committee also offer useful data bearing on urban and regional development problems. It is hoped, in the next few years, to bring together the results of these surveys for the light they may throw on problems of regional development.

47. Continuous study of economic trends and rates of growth in different regions and of the programmes bearing on the less developed regions is essential for securing more balanced regional development. The underdeveloped areas have to be more closely indentified, their resources surveyed and the factors in their development examined. It is, therefore, proposed to set up a special working group for a closer study, in collaboration with State Governments and others, of different aspects of regional development, including the indicators and the resources, and to make proposals for reorienting existing programmes or devising additional measures with a view to securing balanced development in different parts of the country.

4. FOREIGN TRADE

48. In recent years, India's imports have risen sharply as a result of the acceleration of developmental effort. For the first four years of the second plan, imports have averaged Rs. 1050 crores

per year while exports have been around Rs. 610 crores per year. In these circumstances, it is obvious that a much greater effort to raise exports is called for.

49. The advance in production in several lines during the first two plans has made it possible to substitute imports by domestic production to an extent. However, in a rapidly developing economy, import requirements of raw materials, non-ferrous metals, mineral oils and specialised equipment are bound to go up. While the increase in domestic output tends to reduce imports in certain lines, other imports rise. Imports in the aggregate are thus unlikely to show a fall; they tend, in fact, to grow. A viable balance of payments position can be reached only on the basis of a progressive increase in the domestic capacity for producing capital goods and equipment and a strengthening, at the same time, of the export capacity of the economy.

50. Commercial policy in the coming years will have to concentrate on export promotion to the maximum extent possible. It will be necessary also to exercise the greatest possible restraint in respect of imports. The gap between import requirements and export earnings cannot be closed immediately, but every effort will have to be made to do so progressively. The aim is to secure a balance on external account within a period of ten years or so.

EXPORT PROMOTION DURING THE SECOND PLAN

51. The need to maximise export earnings and to economise on imports was emphasised in the Second Plan. In pursuance of this policy most of the controls on exports—which were mainly a relic of the exceptional conditions of the Korean boom period—have been removed and a number of commodities have been freed from quota restrictions. Export duties have been abolished or reduced. The procedures for reimbursement of customs duties paid on imported raw materials used in the manufacture of export products have been simplified. Imports required for producing finished products for exports are licensed readily despite the foreign exchange shortage. Special allocations of raw materials are given to export industries and special facilities are being given for movement of exports by rail and by sea.

52. On the organisational side, eleven export promotion councils have been set up. Their function is to devise measures for market research and improvement of marketing techniques and to adapt production to the requirements of overseas markets. Mention may be made in this connection of the steps taken by the shellac and mica export promotion councils to form exporters' associations in

their respective fields. Commodity boards such as the Tea Board, the Coffee Board and the Coir Board have devoted increasing attention to exports. Separate export organisations have also been set up to promote exports of handloom cloth and handicrafts.

53. With a view to diversifying export markets, trade agreements have been concluded with 25 countries. Commercial representation abroad has also been strengthened. Indian participation in international fairs and exhibitions has been arranged on a larger scale than before. A directorate of export promotion has been set up with field offices at the ports to provide a variety of services to exporters and to pay continuing attention to exports. A number of advisory bodies comprising producers and exporters have been established in order to facilitate systematic consultation between government and trading interests. The standing committee of the Export Promotion Advisory Council has been meeting at frequent intervals.

54. An Export Risks Insurance Corporation was set up in 1957 to encourage exports on credit terms as well as to cultivate new markets. An important development in the field of foreign trade in the second plan period was the establishment of the State Trading Corporation designed to supplement established trading channels, to resolve trading difficulties and to organise exports on an expanding basis. This corporation has been instrumental in concluding long-term agreements for export of iron ore which will figure as an important foreign exchange earner in the third plan period and thereafter. Following this agreement, it has been decided to make substantial investments in mining, railway transport and port facilities.

55. Although the measures mentioned above can be expected to bear full fruit only in course of time, there has been some improvement in export earnings. The average annual exports during the first four years of the second plan amounted to Rs. 610 crores as compared to the plan estimate of Rs. 588 crores. The progress of exports might have been better, had it not been for the recession in 1957-58 in the U.S.A. and in Europe.

PROGRAMME FOR THE THIRD PLAN

56. The main objectives of foreign trade policy during the third plan period will continue to be to economise on imports and to reach the highest possible levels of exports. In the chapter on Resources, it has been assumed that exports will increase progressively from an average of Rs. 602 crores during the period 1956-57 to 1958-59 to an average of Rs. 690 crores during the third plan period, the total exports during the plan period being Rs. 3450 crores. It is

considered that, given the increase in production indicated in the Third Plan and appropriate fiscal and monetary policies and measures for export promotion, it should be possible to improve upon the level of exports envisaged in these estimates.

57. There is scope for expansion of the traditional lines of exports. Thus, the sale of Indian tea can be substantially increased in areas where it is not well known or where the taste for it is of recent origin. The demand for Indian coffee abroad exceeds the supply. Vegetable oils, both edible and non-edible, can be marketed abroad in larger quantities than it has been possible to spare in the recent past. Indian pulses are preferred in neighbouring countries and trade in fruits and vegetables can be built up. The export of short staple cotton can be increased if supplies are available. The market for Indian tobacco which can be used as a filler can be extended in Western Europe. Sales of spices in markets abroad can be increased.

58. Increased exports of these traditional items must come, in the main, from increased output. The production programmes in the Third Plan in the agricultural and related sectors, therefore, provide not only for increased domestic consumption but also for substantially larger exports. Thus, the targets for the production of raw jute (6.5 million bales), tea (850 million lbs.), raw cotton (7.2 million bales), coffee (80,000 tons), vegetable oil seeds (9.2 to 9.5 million tons), tobacco (325,000 tons), pepper (30,000 tons) and lac (62,000 tons) have been formulated after taking into account the possibilities of increased exports of either the commodity itself or of its manufactures. In this context, an increase in commercial crops is as important as increased food production. During the second plan, exports of raw cotton and vegetable oils were below expectations mainly because of lower production and rising internal demand. It is felt that exports of these commodities should be raised in the third plan. This has been taken into account in the production targets. It should be stressed, however, that in the event of a temporary decline in output in respect of these commodities, every effort should be made to keep up exports, even at some sacrifice in domestic consumption.

59. The target for fish production at 1.8 million tons and for raw wool at 90 million lbs. should also enable a fair increase in exports being achieved. In respect of the export of tanned hides and skins, especially tanned hides, a scientific approach to the utilisation of cattle should significantly add to exports. Apart from the increased quantities of raw hides which would be available for tanning and finishing, it should also be possible to establish a variety of small

export industries based on animal products such as meat, bones, casings, horns, hooves and the like.

60. With the investments provided for in the Plan for mining, transportation and port facilities, it is expected that it will be possible to increase iron ore exports from the level of about 3 million tons in 1959-60 to about 10 million tons by the end of the third plan. There are also possibilities of increasing exports of pig iron, ferro-manganese and processed mica.

61. Among manufactures, jute goods and cotton fabrics have traditionally been important foreign exchange earners. Freer availability of raw materials and the rehabilitation and modernisation of these established industries will help reduce costs, improve quality and enable a fair increase in exports being realised. In the case of cotton textiles, there is need to develop exports of finished cloth as against greys as also of ready-made garments.

62. While every effort will have to be made to expand traditional exports, there will have to be increasing reliance on new exports such as the products of the engineering, chemical and pharmaceutical industries. Among engineering goods, it is considered that agricultural implements, builders' hardware, diesel engines, electric motors, pumps, sewing machines and household electrical equipment and appliances like air conditioners, refrigerators etc. can be exported in increasing quantities to foreign markets. These exports are at present relatively small, but they are capable of being enlarged rapidly and their proportion to the total will have to rise progressively in the coming years. The exports of these products are expected to be stepped up during the third plan period to five or six times their present level.

63. For raising exports substantially it is not sufficient to have larger production. Exports depend upon how competitive our prices are as compared to those of other suppliers. It is vital in this context to pay adequate attention to the question of production costs. The fiscal and monetary policies to be followed have also to be designed to make it possible for Indian exports to sell abroad at competitive prices. Excise duties on internal consumption can help materially in this direction. The difficulties encountered by our exports abroad need to be studied in relation both to long-term and to short-term factors and suitable measures will have to be devised to overcome these handicaps. The scope for expanding state trading in this context should be carefully examined.

64. In the early stages of development, it is natural for a country to seek primarily to produce within the country what it has hitherto been importing. Industrial development in India has so

far been oriented to the needs of serving the growing domestic market. The experience of the last few years has shown that it is vital to plan for increased exports as well. This requires a broadening of the export base and a drive to develop the existing markets and to establish new ones. To an extent, a developing country should expect to gain from the rising levels of world trade. This general impetus is not however adequate. There are at present considerable handicaps to the expansion of exports from the newly developing countries—despite the growing acceptance of liberal commercial policies by the more industrialised countries. The regional pattern of trade cannot but change as various countries begin to exploit and develop their unutilised resources. There have been considerable changes both in the structure and in the regional pattern of international trade since the end of World War II, and new trade groupings have arisen or are being worked out. Developing countries cannot but wish that these groupings do not become restrictive. India has, in the coming years, to expand exports not only to Commonwealth countries but to other countries as well both in the East and in the West. In recent years, India's trade relations with countries that have adopted a system of state trading have been strengthened considerably on a basis of mutual benefit and it is expected that the arrangements which have been negotiated with them will provide scope for further expansion of trade. The possibilities of closer commercial relations with neighbouring countries in Asia and Africa as also with Latin America have also to be kept in mind while formulating commercial policies.

65. What is required in order to bring about a better balance in the country's external accounts is a sustained and systematic effort to increase exports. This is not a matter of only commercial policy; it links up with investment policy, pricing policy, as well as fiscal policy. In its immediate aspect, the problem is one of creating a larger export surplus even at the cost of domestic consumption. From a longer run point of view, the essential task is to strengthen the economy at the base, to develop capital goods and machine-building industries sufficiently to support from domestic output the high levels of investment envisaged, to produce for export and to develop suitable organisations for securing new markets. The programmes of development both in agriculture and in industry have to be oriented not only to the needs of domestic consumption, but to the no less urgent needs of exports.

5. EMPLOYMENT

66. Full employment is both the object and the consequence of economic development. A large volume of visible and disguised unemployment is a characteristic sign of an under-developed economy.

The problem is accentuated by a high rate of growth of population in India, nearly two per cent per year, which leads to a large addition to the labour force every year.

67. Enquiries conducted by the National Sample Survey have shown very little of visible unemployment in rural areas. There is, of course, widespread under-employment; persons engaged in agriculture and in associated occupations have productive work only during the appropriate season. The extent of under-employment will naturally vary according to the concept used. It will not be appropriate at this stage of development to fix a 'norm' of hours to be worked per day by an individual and consider all persons who are working below that norm as under-employed. A more meaningful concept will be on the basis of willingness to accept additional work. According to investigations undertaken by the National Sample Survey, the estimate of under-employed in this latter category, both in urban and rural areas, works out to 15 millions. The quantum of opportunities for full-time work for these 15 millions is, however, difficult to estimate. A large number of people also work on their own account; they do not often have enough gainful work but in their case the concept of unemployment is not applicable.

68. In an under-developed economy, there is a tendency to spread available work among the whole population. This is particularly so in rural areas, but where this spread of work is too thin to provide a tolerable means of livelihood, a part of the population may migrate to urban areas in search of paid employment. A section of the rural population, namely, landless agricultural labour, however, earn their living through wages for work done for others and among them unemployment is prevalent; the results of the first (1950-51) and the second (1956-57) Agricultural Labour Enquiry indicate some worsening of their position in terms of both availability of work and earnings. In the urban areas it is possible to speak of unemployment somewhat more meaningfully in the sense in which this term is used in industrially advanced countries.

69. The Second Plan was intended to provide additional opportunities of employment on a scale sufficient to absorb new entrants to the labour force. Achievement is likely to have fallen short of the original target with the result that the Third Plan may start with a backlog of unemployment greater by about 2 million than at the start of the Second Plan. It is estimated that new entrants to labour force in the third plan period would be about 15 million, of whom about a third may be in urban areas. Sample surveys have consistently indicated that the incidence of unemployment in urban areas is particularly high among young men who have completed their

secondary or junior college education. The problem of such persons needs special attention.

70. Taking a broad view, an increase in agricultural production would lead to a reduction in under-employment rather than to the creation of new jobs in the rural areas. The increase in industrial production does not lead to a proportionate growth of opportunities for employment because most of the new processes used in large-scale industries are based on high productivity techniques. The number engaged in trade is unduly high in under-developed economies and the expansion of commerce would generally serve to reduce under-employment rather than add significantly to new employment. In this situation, it would take a good deal of time to create conditions of satisfactory full employment.

71. The remedy would be a continuing expansion of the national economy at a high enough rate to create adequate employment opportunities in the urban areas and to provide conditions for a continuing growth of agricultural production which would reduce under-employment and offer greater opportunities of work for landless agricultural labour and similar occupational groups. Sustained programmes over a period of years for the rapid development of agriculture and expansion of modern industries will be the only solution to the problem of unemployment. In the transitional stage, it is necessary to maintain and indeed to promote labour intensive methods of production to the fullest extent so long as this does not lead to a smaller aggregate production in the economy. This policy was accepted in the Second Plan and will have to be continued in the Third and subsequent plans.

72. Taking the size and pattern of investment during the third plan, it is at present estimated that additional employment likely to be created will be of the order of 3·5 million in agriculture and about 10·5 million outside agriculture. There will also be some reduction in under-employment in agricultural, small industrial and trading sectors. The extent to which this may occur cannot, however, be stated in quantitative terms. Thus, the objective of not allowing the employment situation to worsen during the plan period will require about 1 million extra employment opportunities.

73. It is, therefore, necessary to consider further steps for providing additional employment of a productive character in activities which will not call for the use of scarce materials, specialised skills, or foreign exchange. This will require action along several directions of which a few important ones may be mentioned:

(1) By the end of the second plan about 19,000 towns and villages will have electricity and this number is expected to increase to over

34,000 by the end of the third plan; almost all small towns with population between 5,000 and 20,000 are expected to be electrified by the time. The fullest advantage has to be taken of the opportunity this will offer for the expansion of small scale enterprises with the use of power. This will be easier if provision of technical training for artisans as well as for self-employed workers is made in time and on a sufficient scale.

(2) As a part of the programme of the Third Plan it is proposed to work out systematically how the production in large enterprises can be decentralised so that a fair proportion of the production can be taken up by smaller enterprises or even on a family basis. The policy of assigning the manufacture of components to smaller enterprises as an aspect of the programme of decentralised production requires to be implemented in both the public and the private sectors.

(3) To the extent possible, suitable processing industries should be located in rural areas, and steps taken to enable villages to meet the diverse requirements of the neighbouring urban areas.

(4) It is possible to increase the scope for the utilisation of manual labour by restricting the use of machinery in projects to only such operations as would have considerable advantage in terms of costs or the period of construction. This aspect needs to be fully gone into at the time of planning individual projects.

(5) The problem of unemployment is generally analysed in terms of the country as a whole or in relation to large territories such as individual States. Sufficient attention has not been given to the possibilities of making a closer impact on the employment problem at the district and block levels. Every district has development programmes relating to agriculture, irrigation, power, village and small industries, communications and social services. These programmes are intended to raise the level of the economic activity of the district and to increase production generally. Besides the direct employment provided by them, many of the programmes are intended to stimulate activity on the part of individual farmers or artisans or small entrepreneurs and on the part of cooperatives and similar organisations. If full advantage is taken of such programmes it should be possible to expand opportunities for work at the district and block levels by making suitable adjustments and expansions of some of the activities to meet local needs. The suggestion has been made to State Governments that the unemployment problem should be broken down by districts and that as much of it should be tackled directly as possible with the help of the district and block plans.

(6) Surveys of unemployment at the district level indicate that a significant proportion of those registered as unemployed are young

men with education ranging from the middle courses in school education to the first or the second year at college. The numbers in this group are increasing rapidly as education expands in rural areas. Young men belonging to this category cannot find adequate openings in urban areas unless they obtain technical training of some kind or other, and at best they can be absorbed to a limited extent in relatively low paid occupations. Yet, with the development of cooperatives for credit, marketing and farming, establishment of democratic institutions and the development of scientific agriculture, there could be much greater scope for them within the rural economy itself. The process can be greatly speeded if young men in rural areas are picked up for training in running these institutions. As cooperative development proceeds, in due course opportunities for employment at levels of income which are comparable in real terms with those available in the towns will also increase. Development along these lines has the additional advantage that rural areas will retain the services and the leadership of their own educated youth to a far greater extent than is now possible.

(7) It would be possible to train, out of the available labour force, a number of workers who can be moved to other places where there is need to supplement the local labour for the purpose of doing special jobs or for which local skills are not immediately available. Some experience may be gained by setting up pilot projects for this purpose especially with a view to finding out the most suitable types of organisation for carrying out such a programme.

74. The ways described above are no answer to the needs of a number of persons who will still remain unemployed. Channels for employment will have to be opened to them which the normal economic activity of the country cannot at present provide. Hope for them lies in the fact that there are possibilities of work which by raising the productivity of the assets of the community may add to its income and wealth to an extent not less than the outlays to be incurred. A reference has been made earlier to a proposal for special works programmes. There is plenty of scope for productive activities such as, the improvement of small irrigation, clearing of land, contour bunding to prevent soil erosion, planting of trees on a large scale, improving and building village roads, construction of village huts and stores to serve communal needs, etc. It should be possible to organise such local works at a low cost on wages at a subsistence rather than the market level. For example, if half a million new workers are to be organised in this way, the additional cost may be of the order of Rs. 12·5 crores per year. This type of activity should contribute to increased production even within the plan period and to that extent finances can be provided for it. If this

scheme is successful it would be possible to offer opportunities for productive work progressively to a large number of people seeking this in the rural areas. It would have a great impact on the rural population and win their enthusiastic support for the Plan. The real challenge is to the ability to organise such work on a country-wide basis. It is proposed to provide resources in the Third Plan to offer scope for experimentation on a wide scale.

6. LABOUR POLICY

75. The trends in labour policy, initiated after Independence and during the first five year plan, were consolidated and developed during the period of the second plan. This period has also made its special contribution towards the evolution of labour policy and the realisation of its basic aims.

For securing peaceful conditions in industry, the State has, over a decade, taken upon itself the responsibility of providing facilities for promoting the amicable settlement of industrial disputes and has assumed powers of intervention for the purpose of maintaining industrial peace. The feeling has grown that while Government intervention is unavoidable to a certain extent, in the present circumstances, real progress lies in the development of co-operative arrangements evolved by the parties themselves in response to the needs of changing situations. The significance of this approach to industrial relations will be appreciated better when it is seen that the object is to secure not peace alone but higher levels of industrial efficiency and a rising standard of life for the working class.

76. Brief mention may be made here of a few recent developments of outstanding importance which provide the main content and direction of what needs to be done with regard to labour under the Third Plan. A Code of Discipline in Industry, which applies both to the public and the private sector, has been accepted voluntarily by all the central organisations of employers and workers and has been in operation since the middle of 1958. The Code lays down specific obligations for the management and the workers, with the object of promoting constructive co-operation between their representatives at all levels, avoiding stoppages as well as litigation, securing settlement of disputes and grievances by mutual negotiation, conciliation and voluntary arbitration, facilitating the free growth of trade unions, discouraging careless operation or negligence of duty on the part of the worker, and eliminating all forms of coercion and violence in industrial relations. It is obvious that a new concept with such far-reaching aims, in a difficult field, will require a considerable period of earnest endeavour before it gets firmly established in practice. The results so far achieved are encouraging both in terms of the reduction of man-days lost owing

to stoppages and in bringing about a general improvement in the climate of industrial relations. The deplorable consequences of inter-union rivalry both for industry and the workers are well-known. They have been mitigated to some extent by the Code of Conduct which was drawn up and accepted by representatives of workers' organisations two years ago. The failure to implement awards and agreements has been a common complaint on both sides, and if this were to continue, the Codes would be bereft of all meaning and purpose. A machinery for implementation and evaluation has, therefore, been set up both at the Centre and in the States to ensure observance by the parties of the obligations arising from the Codes and from any laws or agreements.

77. Progress has been made in two other directions which have a major significance in the industrial life of the country, namely, the programme of workers' education and the participation of workers in the management of industry.

78. The coming five years should witness the fuller impact of these ideas which have been tried and found useful during the second plan period. The recommendations in the Plan in relation to matters concerning labour were the product of joint consultation and were based on agreements arrived at between the representatives of the organisations of workers and employers. The policy and programmes for the Third Plan are being evolved on the same lines and, on a number of issues, agreement has already been reached.

79. Efforts will be made to reduce to the minimum the recourse to tribunals and courts. This will also be a remedy for the delays which still occur in the settlement of disputes. Ways will be found for increasing application of the principle of voluntary arbitration in resolving differences between workers and employers. Works Committees will be strengthened and made an active agency for the democratic administration of labour matters within an agreed sphere. Adoption of an appropriate "grievance procedure" for all industrial establishments will receive special attention.

80. Further steps will be taken to deal with certain unfortunate aspects of trade union rivalry. Workers must have independent and vigorous organisations so that collective bargaining may acquire its legitimate place in industrial relations. On this depends also the status of the worker and his capacity to play a constructive role in the economic life of the country.

81. The programme of workers' education which the Government has undertaken through a semi-autonomous board is being widely appreciated. It is being run with the full co-operation of all the

employers' and workers' organisations. Large-scale expansion of this scheme is visualised during the third plan. It is expected that workers' education will strengthen industrial democracy and promote a progressive economic system.

82. To give to the workers a sense of belonging in the industrial unit and to stimulate their interest in higher productivity, a form of workers' management was evolved during the second plan. Joint Management Councils have been set up so far in 24 units. These Councils have the right to obtain information regarding the working of the undertaking and have direct administrative responsibility for matters concerning workers' welfare, training and allied matters. Their main function is to bring about mutual consultation between employers and workers over many important issues which affect industrial relations. In a seminar held in March 1960, the representatives of employers, workers, the State Governments and others concerned reviewed their experience of the working of Joint Councils and the solutions they had evolved for specific problems. This scheme will be extended progressively so that it may become a normal feature of the industrial system. The test of the success of the scheme will be the extent to which it contributes to peace, productivity and a better standard of living for the workers.

83. The objective of a rising level of productivity has to be kept in the forefront. It is proposed to work out a Code of Efficiency and Welfare of the workers. The Code will help in cultivating the right kind of attitudes on the part of the management and workers, and will define in concrete terms the responsibilities of both for achieving these ends. Great gains can be achieved in improving quality and cutting down costs by better utilisation of equipment and rationalisation of work loads, work methods and the functions of management. All these possibilities have to be fully explored. Technical committees may be set up for ensuring that the programme of rationalisation is implemented smoothly and in accordance with the agreed principles. The reports of the Wage Boards will give an impetus to this process. Greater attention has also to be given to management education, especially in the training at junior levels of management in the important aspects of employer-employee relations.

84. Government has assumed responsibility for prescribing minimum wage rates under the Minimum Wages Act. Apart from this, the fixation of wages has been left to the processes of collective bargaining, conciliation, arbitration and adjudication. The Second Plan recommended the setting up of Wage Boards as the most suitable method where large areas of industry are concerned. This has so far been applied to the cotton textiles, cement and sugar

industries and will be extended to other industries according to circumstances. The representatives of workers and employers have re-affirmed their adherence to this approach and have agreed that the unanimous recommendations of a Wage Board should be implemented fully. Some broad principles of wage determination have been laid down in the Report of the Fair Wages Committee. On the basis of agreement between the parties, the Indian Labour Conference had indicated the content of the need-based minimum wage for guidance in the settlement of wage disputes. This has been reviewed in the light of certain questions which had arisen and it has been agreed that the nutritional requirements of a working class family may be re-examined on the basis of the most authoritative scientific data on the subject. It is felt that disparities in the earnings of skilled and unskilled workers have narrowed down to a point where incentives for skills are becoming less meaningful. Among the aspects on which studies are proposed to be organised are (a) wage differentials, (b) the manner in which wages should be linked to productivity, (c) the techniques of measuring productivity, and (d) the norms on the basis of which gains in productivity should be shared.

85. Owing to the uncertainty attaching to it, the question of bonus has become a source of friction and dispute. It has been agreed with workers as well as employers that a Commission, constituted on the pattern of Wage Boards, should study the problems connected with bonus claims and evolve guiding principles and norms.

86. A study group has recommended the adoption of a scheme which will combine the different social security provisions at present in force into an over-all social security scheme. Such an integrated scheme has yet to be evolved. The proposal to enhance the rate of contribution to the Provident Fund from 6¼ to 8 1|3 per cent. has been already accepted by Government in principle, but in view of the varying capacity of different industries, a technical committee has been constituted to ascertain if there are industries which are not capable of bearing the additional burden. The coverage of the Employees' State Insurance scheme will be expanded, and it is expected that special hospital facilities will be established, wherever necessary, during the third plan. More attention and resources will be devoted to the prevention of sickness than has been possible hitherto.

87. With the help of studies which are now in progress regarding contract labour, it will be possible to select occupations in which contract labour will not be permitted and, where abolition is not feasible, to decide on the steps which can be taken to safeguard fully the interests of contract workers.

88. The situation in respect of the housing of workers has not improved despite the subsidised housing scheme which has been in operation for several years. The whole approach to the problem will have to be re-examined so that the living conditions of the workers do not continue to affect adversely their health and efficiency. Towards the same end, facilities for recreation and sports will have to be greatly enlarged for all sections of workers.

89. With the help of the Welfare Fund Organisation for workers in coal mines, some progress has been made in the formation of miners' cooperative societies. A few workers' cooperative housing societies also exist in some industrial centres. On the whole, moreover, cooperation has not made much headway so far as the working class is concerned. Great benefits can be derived by workers from the development of various forms of cooperation. This aspect will have to receive a great deal of attention during the third plan. It is hoped that trade unions and voluntary organisations will evince greater interest and initiative in workers' co-operatives, recreation and welfare.

90. The two agricultural labour enquiries undertaken in 1950-51 and 1956-57 have thrown revealing light on the conditions of work and life of agricultural labourers. In the second enquiry, an attempt has been made to assess in broad terms the impact of development schemes undertaken during the first plan period. In order that the agricultural workers may have their due share in the benefits of economic progress, their needs and problems should receive special consideration in the course of the third plan.

91. A large increase in the demand for craftsmen will have to be met during the third plan. At the beginning of the second plan the capacity for training stood at 10,500 trainees; this will increase to over 40,000 at the end of the second plan, and to about 100,000 at the end of the third plan. Attention will be given to improvement of the training, especially in the direction of adequate facilities for in-plant training. In the matter of apprenticeship training, the present situation is unsatisfactory and the lines on which legislative provisions should be made are under consideration.

92. Schemes are being considered for expanding research facilities and widening the base for studies in matters pertaining to labour so as to fill the gaps in our information and understanding of the conditions and problems of workers.

7. LAND REFORM

93. Land reform programmes, which were given a place of special significance both in the First and in the Second Plan, have two specific objects. The first is to remove such impediment to agricultural

production as arise from the rural structure inherited from the past. This should help to create conditions for evolving as speedily as possible an agricultural economy with high levels of efficiency and productivity. The second object, which is closely related to the first, is to eliminate all elements of exploitation and social injustice within the agrarian system, to provide security for the tiller of the soil and assure equality of status and opportunity to all sections of the rural population.

94. The principal measures for securing these objectives were the abolition of intermediary or 'rent-receiving' tenures and the reform of tenancy, including regulation and reduction of rent and security of tenure. A further step to which tenancy reform led was the conferment of right of ownership on tenants.

95. In pursuance of the second object, in particular, it was proposed that steps should be taken to reduce disparities in the ownership of land—a policy widely accepted as being essential for the economic development of countries with limited areas of land and large populations dependent on it. It was realised that with the existing pattern of distribution of agricultural holdings and the predominance of small farms, redistribution of land in excess of any given level of ceiling was not likely to make available any large results in the shape of surplus land for distribution. It was considered, however, that such reduction in disparities was a necessary condition for building up a progressive cooperative rural economy. At the same time, such redistribution of land as might be possible would, along with other measures which have been taken for resettlement on wastelands, afford a measure of opportunity to the landless section of the population, to whose problems special attention was drawn both in the First and in the Second Plan. It should be stressed that the principles on which the scheme of land reform is based do not merely involve adjustments between the interests of different sections of the population which depend on land, but are part of a wider social and economic outlook which has to be applied in some measure to every part of the economy.

96. It will be seen that with the implementation of a programme of land reform on the lines described above the vast majority of cultivators in India would consist of peasant-proprietors. They are to be encouraged and assisted in organising themselves in voluntary cooperative bodies for credit, marketing, processing and distribution and, with their consent, progressively also for production. To the extent such reorganisation is carried out at the village level, some of the difficulties arising from small and uneconomic holdings

could be diminished and the weaker in each community could be assisted to raise their standards. It has always been stressed that as each phase of land reform is implemented, it will become possible to give fuller assistance to cultivators in increasing agricultural production and in diversifying the village economy. Greater cohesion among cultivators and the strengthening of the village community will also lead to a larger local effort and more rapid economic and social progress.

97. Proposals for land reform, which were set out in the Second Plan, represented a broad common approach. It was agreed that as conditions in different parts of the country varied widely, each State should adapt and pursue the essential objectives of land reform as part of the Plan, but always with due regard to local conditions.

98. The main task during the third plan will be to complete as early as possible the implementation of policies evolved during the second plan and embodied in the legislation which States have recently undertaken in pursuance of the accepted policies.

99. It is proposed to consider the subject more fully in the final report on the Plan when the suggestions of the Panel on Land Reform and the views of the State Governments will also be available. The object of this section is to draw attention briefly to a few salient features of the working of land reform programmes during the second plan which require attention at the present time.

ABOLITION OF INTERMEDIARIES

100. Intermediary tenures like zamindaris, jagirs and inams prevailed over one-half of the country. Legislation for the abolition of intermediaries has been enacted, and in most cases it has been implemented, except for a few minor tenures. One of the main questions engaging the attention of State Governments is the assessment and payment of compensation. State Governments should expedite the arrangements for payment of compensation and to the extent feasible, announce definite dates for completing the payments in cash or bonds as the case may be.

TENANCY REFORMS

101. *Rents.*—Legislation for regulation of rents has been adopted or bills have been promoted in all States. In several States the maximum rent has been fixed at one-fourth of the gross produce or less. In some states, however, the rents have yet to be brought down to the level recommended in the Plan. The earlier land reform surveys

showed that the provisions in the law for the regulation of rent were in some cases implemented ineffectively. Recent reports of several State Governments suggest that the new levels of rent are now being commonly observed and that deficiencies which come to light are receiving closer scrutiny. Obviously, the question is one which must be kept under constant observation by State Governments.

102. *Security of tenure.*—Legislation providing for comprehensive measures for security of tenure has been enacted in most States. Bills have been introduced in other States. Pending their enactment, action has been taken for stay of ejectment of tenants. Difficulties have arisen in giving effect to the legislation for the protection of tenants due to surrenders of lands by tenants which have occurred on a fairly large scale in some States. Frequently, the so-called 'voluntary' surrenders are open to doubt as bonafide transactions. The main reasons for these surrenders are the social and economic weakness of the tenants, ignorance on the part of the people of legislative provisions regarding security of tenure, lacunae in the law, inadequate land records and defective administrative arrangements. To discourage such surrenders, it was suggested in the Second Five Year Plan that all surrenders should be registered by the revenue authorities and even where a surrender was registered, the landlord should be entitled to take possession of the land only to the extent of his right of resumption, the balance being taken over by the State. Some States have already taken action along these lines.

103. *Ownership for tenants.*—It was suggested in the Second Five Year Plan that tenants of non-resumable lands should be brought into direct relationship with the State and they should be enabled to become full owners on payment of compensation. Action in this direction has been inadequate in most areas. It is essential to ensure that all tenants of non-resumable lands should become owners within a specified period. To achieve this object, as suggested in the Second Plan, the present link between these tenants and the rent-receiving owners should be removed and tenants brought into direct relationship with the State.

CEILING ON HOLDINGS

104. Legislation for ceiling on future acquisition of land has been enacted or promoted in all States. Legislation for ceiling on existing holdings has been enacted in some States and Bills have been promoted in most others. The main questions in regard to ceilings relate to level of ceiling and transfers.

105. The suggestion in the Plan was that the ceiling might be placed at about three family holdings. When the level of ceiling is described in terms of a particular level of income, this may seem to support the impression that the object of ceilings is to set a limit to rural incomes generally and, therefore, indirectly to restrict the opportunities open to a section of the rural population. It is envisaged that once the ceiling has been determined and the surplus land taken over, the owner will have the right to retain his remaining lands. He will not be required to surrender any land if the value or income from the holding is subsequently increased on account of improvements made my him. It is emphasised that with the adoption of scientific techniques such an area can and will provide progressively larger incomes than at present.

106. In recent years transfers of land have tended to defeat the aims of legislation for land reforms. In the Second Five Year Plan, it was suggested that measures would need to be devised to deal with the problem of malafide transfers. Since it is difficult to distinguish between transfers which are malafide and those which are bonafide, it would seem desirable that all transfers made after the date of the publication of the ceiling proposals or an earlier date as may be proscribed in view of the local conditions, should be disregarded in computing the ceiling limit for any person or family as the case may be. It would, however, be justifiable to make a distinction between partitions and transfers. Partitions relate to separation of shares among the co-shares. No provision would, therefore, seem necessary for disregarding partitions that might be made.

AGRICULTURAL WORKERS

107. The results of the second Agricultural Labour Enquiry, which have now become available, provide an opportunity to take stock of the progress made during the first two plans in improving the conditions of agricultural workers, specially those who are landless. In approaching the problem, stress has been laid in the past on the provision of house-sites for landless workers, redistribution of surplus lands, enforcement of minimum wages, increased agricultural production and development of village industries. About 3 million acres of cultivable waste land have been distributed to landless workers during recent years. Of the lands obtained as Bhoodan and Gramdan, nearly a million acres have been distributed. In the Third Plan, much emphasis has been placed on works programmes for the utilisation of manpower resources in rural areas and the formation of labour cooperatives. These will help reduce under-employment and raise the levels of living of agricultural workers. The responsibility of the community development

movement in relation to the less privileged sections of the community has also been emphasised.

108. To ensure that the benefits of different development programmes reach the landless agricultural workers effectively, the problems of this section of the rural community should be dealt with in a coordinated manner at the district and block level as well as at higher levels. In this connection, action has now to be taken on the proposal in the Second Plan, which was also approved by the National Development Council, that in each State there should be a Board, including leading non-official workers, for advising on resettlement schemes for landless workers and reviewing the progress from time to time. A similar Board was contemplated at the national level for considering general questions of policy and organisation relating to the settlement of landless workers on land. It may be an advantage for these Boards to take a comprehensive view of the problems of landless workers and of measures needed in their interest.

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CHAPTER VI

HUMAN RESOURCES AND SOCIAL SERVICES

I. GENERAL EDUCATION

In the programme of education the main emphasis will be on the provision of facilities for universal education for the age-group 6—11, improvement of science education at the secondary and university stages, training of teachers of all grades and expansion of technical education. The programmes concerning elementary, secondary and university education are considered in this section and those relating to technical education in the next.

2. There has been a marked expansion in facilities for education at all levels since the first plan. However, in relation to the size of the problem and the need to develop the country's human resources and to create conditions of equal opportunity for all, more rapid development is considered essential. Accordingly, it has been decided that under the Third Plan facilities for free and compulsory education for the entire age-group 6—11 should be fully provided. To give effect to this decision, a comprehensive educational survey was carried out in all States. The object of this survey was to delimit school areas and to determine the location of new schools and the areas to be served by them.

3. As against the anticipated outlay under the Second Plan of Rs. 273 crores on educational programmes, including those relating to technical education, a provision of Rs. 500 crores has been made in the Third Plan. This includes Rs. 370 crores for general education and Rs. 130 crores for technical education, compared to Rs. 213 crores and Rs. 60 crores respectively in the Second Plan. The distribution of the allocation between elementary, secondary and university education and other general programmes will be worked out on the basis of proposals drawn up by States but, for the time being, it is reckoned that about Rs. 180 crores may be allocated for elementary education, Rs. 90 crores for secondary education, Rs. 75 crores for university education and Rs. 25 crores for other programmes. These may be compared with the outlays anticipated under different heads in the Second Plan, namely, Rs. 92 crores for elementary education, Rs. 45 crores for secondary education, Rs. 44 crores for university education and Rs. 32 crores for other programmes.

4. The following Table states briefly the progress made in elementary and secondary education during the first two plans and the targets for the Third Plan. (The percentages in the Table refer to the proportion of the estimated population in each age-group enrolled at the appropriate stage).

Enrolment of pupils

year	enrolment (in hundreds of thousands)			percentage		
	6—11 age-group	11—14 age-group	14—17 age-group	6—11 age-group	11—14 age-group	14—17 age-group
1950-51	192	31	12	43·1	12·9	5·4
1955-56	252	43	20	51·0	16·3	8·1
1960-61 (estimated)	330	61	30	60·0	22·6	12·0
1965-66 (target)	504	100	44	80·0	30·0	15·0

Detailed plans will be drawn up by States broadly with a view to realising these targets. The provisions mentioned in paragraph 3 would have to be reconsidered if further examination by States suggests that this would be necessary for achieving the targets.

ELEMENTARY EDUCATION

5. Elementary education is divided broadly into two stages, namely (a) primary, for the age-group 6—11, and (b) middle, for the age-group 11—14. It is estimated that by the end of the second plan, about 60 per cent of the children in the age-group 6—11 will be at school. During the period 1950-51 to 1960-61, the proportion of boys in this age-group attending school has increased from 60 to 79 per cent and of girls from 20 to 40 per cent. There is still a marked disparity between boys and girls attending school, although this is steadily diminishing. It is mainly because of this factor and because some areas are especially backward that it is estimated that by the end of the third plan, the proportion of children in the age-group 6—11 at school may not exceed 80 per cent. In the case of boys, it should be possible to ensure universal coverage, but it is possible that in the case of girls the proportion may go up only to about 60 per cent. Thus, the number of pupils at the primary stage is expected to increase from 33 million to over 50 million. For implementing the programme more than 400,000 additional teachers will be required.

6. The proportion of girls in the age-group 6—11 attending school is markedly lower than the average in six States, namely, Madhya Pradesh, Rajasthan, Uttar Pradesh, Jammu & Kashmir, Bihar and

Orissa. In these States, the primary education programme will be given the resources and facilities needed, so that the all-India figures may reach about 80 per cent at the end of third plan.

7. In the course of the ten years, 1951—61, the proportion of pupils in the age-group 11—14 will have risen from 13 per cent to about 23 per cent. In this group also, the disparity between boys and girls in schools, although diminishing, is still quite considerable, the proportion of boys at the end of the second plan to the population in the age-group being 34 per cent and that of girls only 11 per cent. The number of pupils in the age-group 11—14 attending school will be doubled during the third plan, the proportion rising to 30 per cent of the population in the age-group. It is proposed that regular schooling facilities for this group should be adequately supplemented by opportunities for continuation education. In addition, the Ministry of Labour and Employment are working out a scheme for providing technical training of a simple character for children who have received education upto the age of 11 years. It is envisaged that in the course of the fourth and fifth plans steps will be taken to realise the objective of free and compulsory education for the age-group 11—14, thereby fulfilling the Directive in the Constitution.

8. It has been already decided to model all elementary schools on the basic pattern. By the end of the second plan, about 24 per cent of elementary schools will be of the basic pattern. The process will be carried forward in the third plan.

9. Above all, this requires trained teachers. The emphasis on teacher training is being therefore considerably increased in the Third Plan. A large proportion of the teachers are now being trained in basic methods. By 1960-61 about 70 per cent of training institutions will provide training in basic education. The remaining institutions will also be so converted before the end of the third plan. All new training institutions are to be of the basic pattern. Training facilities will be expanded as far as possible through the development of existing institutions, so that by the end of the third plan at least 80 per cent of the teachers employed will have been trained, short-term courses being provided for the rest. It is proposed that during the third plan the period of training for elementary school teachers should be extended to two years in all States. Extension departments are to be established in a number of training schools. The existing training schools will also be strengthened in respect of equipment, libraries and other facilities.

10. As regards equipment and covered space, these should be provided by the community. Every attempt should, however, be made

to utilise development activities undertaken in the vicinity of the school for educational purposes, thereby enhancing the value of the education given and reducing the additional costs on account of land, equipment etc. which the school must incur to the minimum.

11. In view of the large numbers involved, and the fact that the majority of the existing teachers have not had training in basic education, progress towards fully developed basic schools will of necessity be spread over a long period. The programme of orientation towards the basic pattern has, however, been accepted by the Central and State Governments and some work in this direction has already begun during the second plan. All old and new schools will be so oriented during the third plan. These schools will take up such activities of basic schools as can be carried out with maximum community effort and with the measure of State assistance that can be made available for the purpose under the Plan.

12. Progress towards basic education will largely depend on the steps taken to remove the shortcomings of existing basic institutions. This calls for much effort in ensuring adequate training, improvement in teaching methods, efficient inspection, provision of suitable literature and conscious efforts to link the activities of basic schools with those of the local community in the field of agriculture, village industries, community development, social education, etc. To work out effective links between the school and local development activities, it is proposed to establish model senior basic schools in selected development blocks.

A factor limiting the expansion of basic education is that it has been largely confined to rural areas. A number of model basic schools are, therefore, proposed to be set up in urban areas.

SECONDARY EDUCATION

13. The proportion of pupils in the age-group 14—17 receiving secondary education will increase from about 5 per cent before the First Plan to about 12 per cent by 1960-61. By the end of the third plan, this proportion is expected to rise to a little over 15 per cent. At the secondary stage also, as in the elementary, there is considerable disparity between boys and girls, the proportions being respectively 24.5 and 6.7 per cent of the population in the age-group.

14. The three main directions in which it is proposed to continue the reorganisation of secondary education during the third plan are (a) to increase facilities for science education, (b) to improve the multi-purpose schools established during the second plan and increase

their number to a limited extent, and (c) to set up new secondary schools as higher secondary institutions and to convert existing secondary schools to this pattern to the extent feasible.

15. At the end of the second plan, facilities for science education will be available in 11,500 out of 14,000 secondary schools. The number of secondary schools is expected to increase to 18,000 by the end of the third plan. The objective is to introduce general science courses in all these schools by providing special assistance for laboratories and training of teachers. Besides the course in general science, science as an 'elective subject' should also be introduced in as many schools as possible. This requires a higher standard of teaching facilities which should be achieved in about 4,000 of the schools offering courses in general science. Apart from the provision of laboratories, the main difficulty in expanding science teaching is the lack of adequately qualified and trained teachers. In this connection, a number of suggestions have been recently offered by the All-India Council for Secondary Education. These include special training schemes for science teachers and laboratory assistants and steps to meet the shortage of science teachers. The Council has also recommended the preparation of standardised designs of science apparatus and arrangements for the distribution of equipment among educational institutions. The question of scientific instruments has been examined recently by a committee and it has been decided that with a view to providing the scientific instruments needed by schools and other institutions from production within the country, to the extent possible, firm orders should be placed for a period of years ahead on existing and potential manufacturers.

16. In the course of the second plan, 1,550 secondary schools will have been converted into multi-purpose schools. These institutions have found it difficult to obtain trained teachers specially for subjects requiring practical instruction. It is suggested that apart from a limited number of new multi-purpose schools which may be established, the main emphasis in the third plan should be on improving and developing the institutions already set up and on the provision of adequate teaching facilities. To meet the requirements of teachers it has been decided to set up four regional training colleges.

17. It has been agreed that new secondary schools should be of the higher secondary type. By the end of the second plan, about 2,550 secondary schools will have been converted to this type. With the upgrading of 2,000 existing schools and the opening of 4,000 new schools, by the end of the third plan there will be about 9,000 higher secondary schools, accounting for about one half of the total number of secondary schools.

18. In the reorganisation of secondary education, an important object is to impart to it a vocational and practical bias. This is being done through the introduction of training in crafts as a key subject in all higher secondary schools and through workshop practice in multi-purpose schools. The teaching of crafts is at present handicapped on account of the dearth of trained teachers and the lack of adequate equipment. It is suggested that the plans of States should give particular attention to these problems.

19. The role of educational research is being increasingly emphasised. It is proposed to expand facilities for research at the Central Institute of Education and at a number of training colleges in the States. Problems relating to the reform of examination system have been studied carefully and a programme is being formulated.

UNIVERSITY EDUCATION

20. At the end of the second plan there will be 41 Universities and about 1,050 colleges. The number of students in these institutions in arts, science and commerce will have increased from 634,000 in 1955-56 to about 900,000 in 1960-61. The number of science students will, however, increase only from 209,000 to about 270,000 at the end of the second plan, so that the proportion of science students will in fact have slightly declined between 1956 and 1961. One of the main tasks in the third plan will, therefore, be to expand facilities for the teaching of science, the aim being to raise the proportion of science students to about 40 per cent. This is essential for meeting the increased demand in a number of different fields, science teachers for schools, students for engineering and other technical institutions, industries etc. The proposed target can only be achieved if early efforts are made to provide increased facilities for laboratories and to obtain the personnel for teaching. The University Grants Commission is devoting special attention to this problem.

21. A series of measures have been initiated in recent years by the University Grants Commission, Universities and other authorities to improve the quality of university education. Among these may be mentioned the introduction of the three-year degree course, improvement of libraries and laboratories, development of post-graduate studies and research, provision of hostel facilities, institution of merit and research scholarships, improvement of salary scales of teachers, organisation of tutorials and seminars and greater attention to the welfare of students. These programmes will continue during the third plan. In addition, it is proposed to make larger

provision for scholarships, fellowships, research studentships etc. To reduce the pressure on universities and colleges, it is also proposed that evening colleges, correspondence courses and external examinations should be instituted on a large scale.

22. A number of schemes which were initiated during the second plan with a view to bringing about qualitative improvement in university education will be implemented on a larger scale in the third plan. These include measures concerning examination reform, improvement of teacher-pupil ratio, grants for research and publications, organisation of seminars and conferences for discussion of important problems, and provision of amenities and facilities for students. Action along these bases should also contribute to the solution of the problem of student indiscipline.

23. The financial allocation for university education has been placed at Rs. 75 crores for the Third Plan period as against Rs. 44 crores in the Second and Rs. 15 crores in the First. The programmes to be undertaken include provision of facilities for science teaching, raising of the scales of pay of teachers, improvement of laboratories and libraries, provision of post-graduate studies and research, scholarships and loans, assistance for hostel and staff quarters and other schemes such as rural institutes, evening colleges, correspondence courses and pilot projects.

SOCIAL EDUCATION

24. Some progress has been made in social education work during the second plan. A large number of literacy centres, community centres, reading rooms and libraries have been established. The National Institute of Fundamental Education and the All-India Institute of Audio-Visual Education have been engaged in the study of methods and problems bearing on mass education. There has been considerable poineering work in different parts of the country on the basis of which it should now be possible to evolve an effective programme of social education with a special reference to adult literacy. It is proposed to refer to this subject at greater length in the final report.

MORAL AND SOCIAL VALUES IN EDUCATION

25. A brief reference may be made here to the need to give greater attention to the question of inculcating moral and social values among students at all stages of education. It is being increasingly realised that the purpose of education will not be fulfilled unless its content in this respect is greatly enriched. This subject has recently been studied by a special committee whose proposals have

been generally accepted by the Central Advisory Board of Education and include suggestions for preparation of suitable texts designed to stimulate interest and faith in moral and social ideals, the imparting of moral instruction and arrangements for organised social service involving participation in community work.

NATIONAL SERVICE

26. A proposal to introduce a scheme of compulsory national service with a view to improving the quality of educated manpower has been under consideration for some time. The scheme aims at channelling the energies of youth to socially fruitful purposes and bringing to the students an intellectual and emotional awareness of and identification with the various tasks of social and economic reconstruction and security of the country. It is essentially a measure of educational reform and is designed to inculcate among students a sense of discipline, national unity and cohesion, spirit of social service and dignity of labour.

OTHER PROGRAMMES

27. Provision has been made under the Third Plan for programmes of development of languages and culture, youth programmes and the establishment of the National Central Reference Library, etc. which were initiated in the Second Plan.

2. TECHNICAL EDUCATION

28. During the second plan, there has been considerable expansion of technical education. The number of engineering colleges has increased from 65 to 97 and the annual intake from about 5,888 to 13,165. The number of polytechnics has risen from 114 to 197 and their annual intake from about 10,484 to about 24,020. As it takes five years to train graduates and three years to complete the training for the diploma course, the out-turn of graduates has so far increased only from about 4,000 to about 8,300 per annum and for diploma holders from about 4,000 to about 10,000. As a result, however, of the expansion which has already taken place, by 1965 the annual out-turn in the existing engineering colleges will increase to 11,500 and of polytechnics to 18,900.

29. Estimates of demand and supply for the second, third and fourth plans for graduates and diploma holders are shown in the

table below. The estimates of supply for the fourth plan have been based on the increased provision of facilities in the third.

	category	second plan 1956-61		third plan 1961-66		fourth plan 1966-71	
		demand	supply	demand	supply	demand	supply
1	graduates	28,000	26,000	45,000	51,000	75,000	75,275
2	diploma holders	54,000	32,000	80,000	76,000	1,20,000	1,17,500

30. Estimates of supply for the third plan have been worked out with reference to the training facilities which are already available. The requirements of engineering personnel in the third plan are estimated at 45,000 graduates and about 80,000 diploma holders. These will be met. The small shortfall in the case of diploma holders will need to be made up through additional training facilities to be established as early as possible in the third plan.

In the third and successive plans, there will be increasing emphasis on mechanical, electrical and chemical engineering along with the need for training specialists in the fields of mining, metallurgy and other technologies. A change in the existing proportion of intake in the various branches of engineering and technology will accordingly be effected in the third plan.

31. During the third plan, it is proposed to increase the annual intake of degree students by 6,000, of which 5,000 will be by admissions to the engineering colleges and 1,000 by training through part-time and correspondence courses. The annual intake will thereby rise from 13,200 in 1961 to 19,200 by 1966. The estimated demand for 75,000 engineering graduates in the fourth plan will thus be met by an out-turn of graduates trained in the engineering colleges and through part-time and correspondence courses.

Similarly, it is proposed to increase the annual intake of diploma students by 15,000; 10,000 by admissions to polytechnics and 5,000 through part-time and correspondence courses. The annual intake will thereby rise from 24,000 at the end of the second plan to 39,000 by the end of the third plan. This will meet the demand for diploma holders in the fourth plan, which is at present estimated at 120,000. It is, however, likely that the overall demand may be larger, and appropriate steps will be needed to meet this.

Advantage should also be taken of facilities in the research laboratories, technical government organisations such as those of the Ministries of Defence, Railways, Irrigation and Power and Transport and Communications, the Public Works Department and industrial establishments both in public and private sectors for training additional personnel at the degree and diploma levels.

The increase in the annual admissions in the engineering colleges and polytechnics will be achieved mainly by the expansion of existing institutions although, where desirable, the setting up of new institutions will also be considered.

32. A tentative allocation of Rs. 130 crores has been made in the third plan for carrying out development programmes in technical education as against Rs. 60 crores in the second plan and Rs. 20 crores in the first.

Detailed estimates will need to be worked out with special attention to economies in construction and possibilities of restricting the building programme to the minimum. This development programme has a very high priority and if after detailed schemes are worked out it is found that additional funds will be required these should be provided.

33. The main programmes during the third plan relate to the development of the School of Mines and Applied Geology, Dhanbad; the Delhi Polytechnic; the Indian Institute of Technology, Kharagpur and the other Institutes of Techonology set up in Bombay, Madras and Kanpur during the Second Plan. The existing four Schools of Printing and the Institute of Town and Country Planning will be further developed. The schemes relating to Practical Training Stipends and Research Training Scholarships will be continued. Provision has been made for the training of teachers and setting up hostels for the trainees. The continuation programme of the 8 regional engineering colleges and 27 polytechnics and the expansion of facilities in selected institutions initiated in the second plan will be completed. The five-year integrated course in engineering|technology will be introduced in a number of institutions. For replacing the obsolete equipment and for improving ill-equipped engineering institutions provision has been made in the plan. Twenty five junior technical schools were started during the Second Plan. Provision has been made for the setting up of additional 100 junior technical schools as adjuncts to polytechnics. Besides these continuing programmes provision has been made in the plan for training additional numbers of engineering personnel and for scholarships, hostels and improvement in the salary scales of teachers.

34. As stated above, the greater part of the increase in admissions is to be secured through expansion of existing institutions. There

is a consensus of judgment in favour of well-established institutions increasing their intake capacity from the present maximum of 240/300 to 400 per annum and if possible a larger number without having to lower the standards. Where new institutions have to be established, it may be advisable, as far as possible, to locate them in industrial areas. This will strengthen the link between technical institutions and large-scale industrial establishments.

35. A difficult problem in the expansion of technical education is the shortage of teachers. It is reckoned that at present this shortage amounts to about 33 per cent in degree colleges and about 25 per cent in diploma institutions. The schemes of training fellowships in selected engineering colleges and foreign studentships for graduates who return to teaching posts initiated in the second plan will continue in the third plan. It is expected that higher salary scales recommended by the All-India Council for Technical Education will also attract larger numbers to this profession.

It is proposed to increase the provision for scholarships in engineering institutions and also to provide for loan scholarships which can be repaid in easy instalments.

36. Post-graduate courses in engineering and technology have been introduced in 21 institutions. The question of coordinating post-graduate and research facilities and their further development is being considered by a special committee.

3. HEALTH

37. Health programmes in the third plan, as in the second, may be broadly divided into six groups:

(1) improvement of environmental hygiene, specially rural and urban water supply;

(2) control of communicable diseases;

(3) provision of adequate institutional facilities to serve as a base for organising health services;

(4) provision of facilities for the training of medical and health personnel;

(5) family planning; and

(6) public health services, including maternal and child welfare, health education and nutrition.

As a result of the measures undertaken during the first and second plans there has been some improvement in the health conditions of the people generally which is reflected in the lower incidence of disease, decrease in infant mortality, general decline in mortality rates and increase in the expectation of life. While continuing programmes initiated during the first two plans, in the third plan it is proposed to place greater emphasis on preventive public health services and on the eradication and control of communicable diseases. In dealing with diseases such as tuberculosis and leprosy, public health control measures will be given priority as against the provision of facilities for institutional care.

38. The total outlay on health programmes was stepped up from Rs. 140 crores in the first plan to Rs. 225 crores anticipated for the second plan. The tentative provision for the Third Plan has been placed at Rs. 300 crores. The Table below shows the distribution of outlay under different heads under the three Plans. The distribution for the Third Plan is intended to give only a broad indication, as the amounts actually required for the various programmes will be determined on the basis of plans drawn up by States:

Table 1: Outlays

(amount in Rs. crores)

programme	first plan	second plan (anticipated outlay)	third plan (proposed outlay)
1 water supply & sanitation (rural & urban) . .	49.0	72.0	80.0
2 primary health units hospitals & dispensaries	25.0	37.0	50.0
3 control of communicable diseases . . .	23.1	69.0	92.0
4 education & training .	21.6	35.0	38.0
5 indigenous systems of medicine . . .	0.4	4.0	8.0
6 family planning . .	0.7	3.0	25.0
7 other schemes . .	20.2	5.0	7.0
8 total	140.0	225.0	300.0

RURAL WATER SUPPLY

39. The problem of rural water supply varies greatly from region to region and often within the same region. Responsibility for providing facilities for safe water supply to rural areas rests with State Governments and the administrations of Union Territories. Ever

since District Boards were established, it has been one of their primary duties to improve drinking water supply in villages. Because of the widely dispersed nature of the problem it is not always easy to obtain statistics showing the extent to which safe water supply has been provided in rural areas. Surveys are at present in progress in a number of States.

40. High priority was given to the provision of safe drinking water in the villages both in the First and Second Plans. Rural water supply facilities have been extended under four different programmes, namely: (a) community development, (b) local development works, (c) the water supply and sanitation programme of the State Health Departments, and (d) programme for the welfare of backward classes. Provisions under these programmes are intended primarily to supplement the effort of the local bodies. The simpler types of water supply schemes are assisted under the community development and the local works programmes. Provisions for the welfare of backward classes are used specially in areas where these groups are concentrated. The national water supply and sanitation programme, with which the Ministry of Health is associated at the Centre, is concerned with schemes which require a measure of technical skill in design and construction, including the provision of piped water supply to groups of villages, deep tube wells with pumps, treatment and filtration of surface water sources etc. Under this programme priority is given to areas which suffer from water scarcity and those where water-borne diseases are endemic.

41. Programmes for the extension of rural water supply undertaken in the second plan will be continued in the third. While there will be a limited provision under the allocation for 'Health' for the more elaborate types of rural water supply schemes, in the main, this programme will be based on: (a) local development works, (b) the community development programmes, and (c) the provisions made for the welfare of backward classes. Under the local development works programme, Rs. 50 crores are being allocated for the provision of certain essential rural amenities, towards the building up of which local communities will contribute mainly in labour and to some extent also in money. Among these amenities, the adequate supply of drinking water undoubtedly has the first priority. Rural water supply schemes will constitute one of the important items in the plans of development blocks to be prepared in the next few months, which will eventually form part of the plans of States. Since financial provisions for rural water supply are found under different heads, it is necessary that in the States an integrated view should be taken of the programmes at the district and block levels. It is

also desirable that there should be the fullest stress on local initiative and local contribution on the part of the people in each area. It is expected that if action is taken along the lines suggested above and the programmes are efficiently executed, adequate safe drinking water supplies will be available in a vast majority of villages in the country. In some areas, however, conditions may be particularly difficult and special schemes may be required.

URBAN WATER SUPPLY

42. The provision of water supply in urban areas is primarily a municipal responsibility. In view, however, of the rapid growth of the urban population during the war and more recently under the impact of programmes of economic development, the Central Government agreed to advance loans to State Governments to enable them to assist corporations and other municipal bodies to carry out programmes for augmenting water supply and improving drainage. When the urban water supply programme was taken up on a large scale at the end of the first plan, the following order of priority for the selection of areas was indicated:

(1) municipal areas without any protected water supply arrangements;

(2) improvement or expansion of existing facilities for water supply in urban areas where the present arrangements are either inadequate or unsafe from the public health point of view;

(3) pilgrim centres; and

(4) areas having piped water supply and therefore requiring new sewerage or improvement to existing sewerage to remove waste water and eliminate hazards to public health.

As against a provision of about Rs. 12 crores in the First Plan, the Second Plan allocated Rs. 58 crores for urban water supply. About 650 water supply schemes with an estimated cost of Rs. 100 crores were taken up. These were expected to provide safe water supply to a total urban population of 12 million. Since a substantial part of the expenditure on about 200 of the schemes already commenced has to be met during the third plan, the number of new schemes that can be taken up against the tentative allocation proposed for urban water supply is necessarily limited.

43. As a result of the experience of urban water supply schemes during the second plan, three main suggestions may be made. In

the first place, urban water supply schemes, specially the larger ones, need to be phased carefully, so that different parts of a project are in the correct sequence with one another and at each stage certain returns on the outlays incurred are realised. The technical scrutiny of plans and estimates is important if delays are to be avoided. Secondly, to ensure that the funds available are used to the best advantage, it would be desirable to avoid dispersing them too thinly over a large number of schemes. This implies careful selection of urban water supply schemes on the basis of suitable criteria. Thirdly, once a project is accepted, the municipal body concerned should not only accept responsibility for maintenance but also contribute to the cost of construction to an extent which may be determined by the State Government. Finally, while proceeding with water supply schemes, problems of drainage and sewerage have not always received adequate attention. Water supply and drainage should wherever possible be taken up as coordinated programmes. Failing this, there is risk of increased breeding of mosquitoes and of deterioration in the sanitary conditions of towns.

PRIMARY HEALTH UNITS, HOSPITALS AND DISPENSARIES

44. The programme for establishing primary health units is integrated with the scheme of community development. By the end of the second plan, 2800 such units will have been established. Along with the extension of the community development movement, primary health units will be established in all development blocks.

45. The number of hospitals and dispensaries will have increased from 8600 in 1951 to 12600 in 1961. During the same period, the number of beds will have increased from 113,000 to 160,000. The tentative target for the third plan is 14600 hospitals and dispensaries and 190,000 beds. Primary health units need more adequate support from hospitals at the district and sub-divisional level. This is also essential for ensuring a closer link between teaching and other central hospitals and the primary health units serving rural areas.

COMMUNICABLE DISEASES

46. The programme for the control of communicable diseases includes schemes pertaining to malaria, filaria, tuberculosis, leprosy, small pox and venereal diseases.

47. *Malaria*.—The malaria control programme, which forms the most important programme in this group, was taken up during the first plan, at the end of which 133 control units were in operation. In the second plan, the number of control units was first increased to

200. Later, when it was agreed to convert the control programme into an eradication programme, the number of units was further increased to 390. The eradication programme involves intensive spraying for a period of three years, followed by surveillance for a further period of two years. During the third plan, the malaria eradication programme will need a total outlay of about Rs. 55 crores. Once malaria has been eradicated, relatively small recurring expenditures will be required for avoiding its recurrence. The eradication of malaria has considerable significance for improving general productivity, since in the past, malaria had accounted for a large proportion of the sickness and mortality prevailing in several parts of the country.

48. *Filaria.*—Under the programme for the control of filaria which was taken up in the first and second plans, 46 control units have so far been set up. Besides continuing these units, during the third plan, it is proposed that filaria clinics should be set up at the teaching hospitals in the affected areas. It is also proposed that drainage schemes should be undertaken so as to serve the needs of filaria control.

49. *Tuberculosis.*—Recent surveys suggest that while mortality from tuberculosis is showing signs of decline, the incidence rate has remained more or less the same, both in cities and in villages. Pilot projects have also indicated the possibility of a mass attack on this disease through domiciliary chemotherapy. Thus, the conditions are now favourable for shifting the emphasis from institutional care to public health and control measures. The main approach to tuberculosis in the third plan will therefore consist of—

(1) intensification of the B.C.G. vaccination programme so as to cover the susceptible population by the end of the plan period;

(2) extension of the tuberculosis clinic programme aiming ultimately at the provision of one clinic for one million population;

(3) provision of domiciliary treatment facilities around the clinics; and

(4) setting up of tuberculosis training and demonstration centres.

By the end of the second plan, the B.C.G. vaccination programme will have been extended so as to cover 120 million persons; the number is likely to increase by more than 100 million during the third plan. The number of beds will have increased to 25,000 by 1961 and it is proposed to add another 5000 beds during the third plan. The number of training and demonstration centres is expected to increase from 10 at the end of the second plan to 15 at the end of the third. The training programmes at these centres will be supported by those organised at the National Tuberculosis Institute at Bangalore.

50. *Leprosy.*—By the end of the second plan, besides facilities for special treatment, 100 centres for leprosy control will have been established. Extensive surveys have been undertaken from these centres and facilities for treatment provided. By 1965-66, it is hoped to increase the number of these centres to over 200. It is also proposed to associate, in anti-lepsory work, a larger number of voluntary organisations and social workers; and to bring about greater coordination between various agencies working in this field. It is further envisaged that every hospital and primary health unit in the endemic areas should be organised as a nucleus for leprosy control work.

51. *Small-pox.*—Owing to the progress made in small pox vaccination, in recent years there has been a large decline in the morbidity and mortality rate of this disease. A programme for the eradication of small pox has been worked out by a committee appointed by the Ministry of Health. The main elements in the programme are: (a) recruitment and training of a large number of vaccinators, (b) undertaking mass vaccination, and (c) increase in the supply of vaccine lymph.

52. *Venereal Diseases.*—During the second plan, for the control of venereal diseases, which are specially prevalent in large cities and industrial areas, and in some of the sub-Himalayan tracts, 75 district clinics and 8 headquarters clinics were established. It is proposed to enlarge this programme.

53. *Other diseases.*—The Plan includes schemes for the control of goitre, trachoma and cholera. The incidence of goitre in the sub-Himalayan region is considerable. With a view to controlling the disease, supplies of iodised salt are being distributed. Trachoma has been found to be prevalent in several parts of the country and among particular groups. Experiments to control the disease in certain pilot areas have been successful. On the basis of the experience gained, the control campaign is being extended. In the control of cholera, improvements in environmental sanitation are being given special emphasis.

PUBLIC HEALTH SERVICES

54. Besides the strengthening of the machinery of public health administration, greater attention has to be given to the development

of public health services, specially health education, care of the health of the mother and the child, provision of school health services and nutritional programmes and the development of public health laboratories. Health education bureaux have been set up in the Ministry of Health and in seven States. The programme in the Third Plan includes the establishment of field training and demonstration centres, setting up of health education bureaux in States in which these do not at present exist, training of health education specialists, formation of social education units, organisation of health education services and the production of health education material. Among the vulnerable groups of the population, to which it is essential to devote special care, are expectant mothers and nursing mothers, school-going children and infants. School feeding programmes are being gradually extended. Through primary health units, food supplements in the way of skimmed milk and vitamins are reaching needy mothers and children. In this field, valuable assistance is being received from international agencies, specially the UNICEF.

TRAINING FACILITIES

55. There has been steady expansion in training facilities for medical and health personnel. The number of medical colleges will have increased from 30 in 1951, to 55 in 1961, the corresponding annual intake increasing from 2,500 to 5,000. The total out-turn of doctors during the second plan is estimated at about 14,000 and, with the facilities now established, will amount to about 19,000 during the third plan. It is estimated that the number of doctors actively engaged in the profession will increase from about 65,000 in 1956 to about 70,000 in 1961 and to about 81,000 in 1966. On these figures, during this period, the population per doctor will remain at a level of about 6,000. The main problem, however, continues to be the small proportion of doctors working in rural areas. This is due to the fact, that most of the medical practitioners are attracted to the urban areas, and a relatively small number goes to the rural areas. As a result, the population per doctor in the rural areas is roughly five times that in the urban areas. This problem has engaged the attention of most States during recent years. To attract more doctors to rural areas, consideration may have to be given to a minimum period of service in rural areas being a condition of public service. Consideration may also have to be given to the provision of incentives for service in rural areas in the form of improvement in emoluments, grant of non-practising allowance, provision of residential accommodation and other amenities, and grant of assistance and facilities for further studies. Another step might be to revive the licentiate course, make available licentiates for

service in rural areas and after a minimum period of work, say three to five years, provide facilities to them to obtain a medical degree.

56. Proposals for the expansion of medical education during the third plan are at present under examination. It is considered that a large expansion should be undertaken so as to avoid shortage of personnel specially during the fourth plan.

57. Since the beginning of the first plan, attention has been given to the expansion of training facilities for nurses and other ancillary personnel. The progress made and the tentative targets for the Third Plan are indicated below:—

Table 2: Annual out-turn

(numbers)

		1951	1956	1961 (estimate)	1966 (provisional target)
1	nurses	1270	2157	2800	4500
2	aux-nurse-midwives/midwives.	1559	2374	4000	7000
3	nurse dais/dais . . .	341	1151	1500	7000

58. In addition to training facilities for the categories of personnel mentioned above, it is also proposed to arrange for orientation courses for leprosy workers, training in tuberculosis nursing, training of engineering subordinates, health statisticians, laboratory technicians, radiographers and pharmacists.

INDIGENOUS SYSTEMS OF MEDICINE

59. A brief mention may be made here of the programme relating to indigenous systems of medicine. For these Rs. 6 crores were provided in the Second Plan and the tentative allotment for the Third Plan is Rs. 8 crores. The programmes relating to indigenous systems of medicine are under consideration. They will include provisions for training, research and standardization and improvement of pharmaceutical products. It is proposed to establish herbaria with a few selected herbs locally available, in the first instance, in individual development blocks.

The indigenous systems of medicine, being widely known in the rural areas, the practitioners of these systems could render useful service in these areas and should be encouraged in this direction. This will, to some extent, strengthen the existing facilities in the rural areas.

FAMILY PLANNING

60. The family planning programme has been referred to earlier as a key programme for the Third and the Fourth Five Year Plans. At the same time, it is a programme which has many complex features and its results can only come over a period. From small beginnings during the first plan, the programme has expanded so that, by 1961, there will be 676 urban centres and 1,121 rural centres engaged in family planning. The programme has been reviewed in detail by a special committee set up by the Ministry of Health to make proposals for the Third Plan. The committee's suggestions cover a large field, including the contents of programme, the agency for implementation, financial implications and issues such as, the place of sterlization in family planning, the role of voluntary organisations, the production and supply of contraceptives and other aspects. These proposals are, at present, under consideration. Subject to the requirements of the detailed programmes, which may be formulated, at this stage an allotment of Rs. 25 crores has been proposed for family planning. Broadly, it is proposed to intensify and extend the present programmes, the main emphasis being on the following aspects:—

(1) wide-spread education to create the necessary social background for a large family planning programme,

(2) integration of family planning activities with the normal health services,

(3) provision of family planning services, including facilities for sterilization, through medical and health centres and facilities for distribution of contraceptives,

(4) development of training programmes in medical colleges and other teaching institutions, and

(5) utilisation in the family planning campaign of local voluntary leadership to the largest extent possible.

4. HOUSING

61. The provisions for housing involving public outlays in the Plan relate to six specific programmes: subsidised industrial housing, low income group housing, slum clearance and improvement, land acquisition and development, village housing and plantation labour housing. Besides these, houses are constructed for their personnel by State Governments and Central Government Departments, such as the Railways, Posts and Telegraphs, Rehabilitation, Defence and others. Further, a number of new townships are being established as, for instance, around the steel plants. Thus, in recent years a

great deal has been done by Government agencies for the provision of housing in a variety of spheres. An attempt is at present being made to bring the relevant data together. Besides public housing, during the past few years, there has been a considerable amount of construction undertaken in the private sector. Rough estimates prepared by the Reserve Bank of India place the total investment in urban housing during the first plan at around Rs. 500 crores and in the second plan at around Rs. 600 crores. There has undoubtedly been a rising trend in urban residential construction which is likely to continue during the third plan.

62. The effort that has been made in housing during the first two plans, both in the public and in the private sector, has been on a much larger scale than in any earlier period. Nevertheless, the arrears of housing, specially in the urban areas, are also increasing and there is no doubt that the problem of providing adequate housing will present serious difficulties for many years. The growth of population and, in particular, of the urban population, which is now increasing at the rate of about 4 per cent per annum, suggests at least three general considerations in relation to the direction in which housing programmes should be developed during the third plan. Firstly, housing policies need to be set in the larger context of economic development and industrialisation, both large scale and small scale, and the problems likely to emerge over the next two or three decades. Proposals relating to location and dispersal of industries will be of increasing importance in the solution of the housing problem. In comparison with the impact of new developments, deficiencies in housing inherited from the past, important as they are, will in themselves be but a comparatively small part of the total problem. In the second place, it is necessary to co-ordinate more closely the efforts of all the agencies concerned, whether public, co-operative or private. The need to undertake the preparation of master plans for urban areas becomes all the greater, for without these plans there is no means of bringing together and maximising the contribution of different agencies towards well-defined common objectives pursued systematically over a long period. In the third place, conditions have to be created in which the entire programme of housing construction, whether public or private, is so oriented that it serves specially the requirements of the low income groups within the community. It is hoped to deal with the implications of these suggestions more fully in the final report on the Third Plan.

REVIEW OF PROGRAMMES

63. The Second Plan provided for an outlay of Rs. 120 crores for various housing development schemes. This was reduced to Rs. 84

crores when plan allocations were revised in 1958-59. Subsequent to this, however, a programme of land acquisition and development has been taken in hand, the Life Insurance Corporation has begun to grant loans for house-building in association with State Governments, and it has been agreed in principle that Housing Finance Corporations or Boards should be established so as to enable large numbers of individuals in the lower and middle income groups to build houses for themselves. The necessary legislation enabling States to set up these Corporations is to be undertaken in the near future. The outlay proposed for the Third Plan is Rs. 120 crores; this may have to be revised with a view to providing more fully for housing for the poorer sections of the community.

HOUSING OF INDUSTRIAL WORKERS

64. Under the subsidised industrial housing scheme the Central Government provides to State Governments, statutory housing boards and the municipal bodies 50 per cent of the cost as loan and 50 per cent as subsidy. For co-operative societies of industrial workers the subsidy given by Government amounts to 25 per cent of the cost and the loan to 65 per cent. In the case of industrial employers 75 per cent of the cost is provided—50 per cent as loan and 25 per cent as subsidy. By the end of the second plan, about 100,000 tenements will have been completed, and 20,000 will be under construction. The scheme should have made greater progress if even the subsidised rate of rent had not proved comparatively too high for workers to pay, with the result that the tenements constructed have in some cases remained vacant. The response of employers and co-operatives has also been meagre. In the ordinary course the scheme now being implemented is unlikely to make a substantial contribution to the solution of the growing problem of housing industrial workers. Meanwhile, it is observed that, with the expansion of the industrial population, housing conditions of workers in the older industries are tending to deteriorate further. The scheme is expected to be reviewed shortly by the Panel on Housing and also in consultation with employers, workers and State Governments. The provision of housing for industrial workers is a necessary condition for increasing industrial efficiency and productivity. It is inevitable that industrial undertakings will need to accept a larger share of responsibility for the housing of workers. While steps are being taken to deal with the problem of arrears of housing in the established industries, it is desirable that in the new industries the provision of housing should proceed *pari passu* with the development of the industry.

Housing for Low Income Groups

65. Under the low income group housing scheme, State Governments provide loans to individuals with an annual income not exceeding Rs. 6,000, repayable within 30 years, the assistance being limited to 80 per cent of the cost of the house including cost of land, subject to a maximum of Rs. 8,000 per house. Since the scheme commenced in 1954, loans for about 74,000 houses under this scheme have been sanctioned, and by the end of the second plan about 60,000 houses are expected to be completed. There is considerable demand for loans under this scheme. Progress in implementing the scheme has been greater in towns in which arrangements for providing sites were made in advance. When Housing Finance Corporations or Boards are set up, it should be possible for them to assist an increasing proportion of persons now receiving assistance from Government under this scheme, and the scope of other institutional loans, such as those from the Life Insurance Corporation may also be gradually extended. It is to be expected that direct assistance from Government under the Plan will be earmarked to a great extent for groups in whose housing an element of subsidy is indispensable, such as sweepers, pavement dwellers, etc. It may also be necessary to provide special incentives to encourage housing cooperatives of such groups.

Slum Clearance and Improvement

66. Problems of slum clearance were reviewed critically two years ago by the Advisory Committee on Slum Clearance and a Study Team set up by the Committee on Plan Projects. The Advisory Committee estimated the number of urban slum houses totally unfit for human occupation in the big cities at about 1.15 million. The Committee suggested that while long-term plans had to be pursued, it was even more essential to think of short-term measures which could be adopted to relieve acute distress in the slum areas. This meant that, as an immediate measure, minimum amenities like sanitary latrines, proper drainage, uncontaminated water supply, moderately good approach roads, paved streets and proper lighting should be provided. The pursuit of the short-term objectives was justified for another reason, namely, that slum clearance could be dealt with effectively only as part of the problem of urban development for which master plans or interim plans were a necessary condition. Following the reports of the committees mentioned above, it was agreed to extend the slum clearance programme to include slum improvement and to provide larger resources as a matter of immediate priority, for dealing with the slum problems of six major cities, Calcutta, Bombay, Madras, Delhi, Kanpur and Ahmedabad. In these cities, the total subsidy for slum clearance was raised from 50 per

cent to 62½ per cent and the Central Government's share in it from 25 per cent to 37½ per cent.

LAND ACQUISITION AND DEVELOPMENT

67. Experience in working the low income group housing, subsidised industrial housing and the slum clearance and improvement schemes led to the conclusion that these programmes as well as the possibility of encouraging middle income and low income groups generally to build houses for themselves turns on one condition more than on any other, namely, the availability of building sites in sufficient numbers and at reasonable rates. A land acquisition scheme has therefore been introduced recently to enable State Governments to acquire and develop lands in selected places and allot plots to those eligible for assistance under different schemes in the following order of priority: (1) slum clearance scheme, (2) subsidised industrial housing scheme, (3) low income group housing scheme, (4) middle income group housing scheme, and (5) rental housing scheme for State Government employees, with a limited proportion of the plots earmarked for sale to those not provided for under these schemes. The scheme also envisaged that lands thus acquired and developed should be used as a means for promoting planned and rational growth of new neighbourhoods and for locating, where possible, new small and medium-scale industries in the vicinity. In the first instance, priority is given to the six major cities, but it is intended to extend the scheme progressively to other cities which are growing rapidly in size and population. For the third plan, the land acquisition and development scheme should be regarded as basic to the success of the entire housing programme, and it is expected that a fair share of the available resources will be devoted to it.

It has also been proposed that in the Third Plan there should be a special allocation for assisting State Governments in preparing master plans for the larger cities and towns.

68. In many cities the main obstacles to the large-scale acquisition of land are rising land values and time-consuming administrative and legal procedures. The freezing of land values is an essential first step, to be followed by a comprehensive effort to improve the procedures. The land acquired should, as a rule, be given on lease-hold basis so as to discourage speculation and provide recurring income to the Government by way of ground rent which should be revised periodically on the basis of the increment in the value of land. Measures such as special assessment of agricultural lands put to non-agricultural uses, betterment levies, taxation on vacant plots etc. are also essential. In large cities there is need too for placing a ceiling

on the size of individual plots and the number of plots that a single party may be permitted to acquire.

RURAL HOUSING

69. The Second Plan provided for a small beginning in dealing with the problem of rural housing. Improvement of village housing was viewed as part of the all-round economic development of rural areas to be pursued *pari passu* with such development. The village housing projects scheme provides for assistance in the shape of loans and technical assistance. In the case of scheduled tribes, scheduled castes and other backward classes, where an element of subsidy is considered necessary, it could be found from within the separate provisions made in the Plan for their welfare. The scheme envisages that in selecting villages, preference will be given to the following categories of villages:—

(1) villages situated in flood affected areas which it is proposed to rebuild on sites free from this danger;

(2) villages in which there is considerable congestion on account of increase in population as in delta or other irrigated areas, in the neighbourhood of industrial towns, etc.;

(3) villages in which there are substantial populations of backward classes with bad living conditions on account of poverty and inadequate building sites;

(4) villages in which consolidation of holdings has been completed or is proposed to be carried out, land being made available consequently for the improvement of village housing and development of community facilities; and

(5) villages with programmes for increasing agricultural production.

The scheme proposed that groups of 4 to 6 adjoining villages should be selected for locating housing projects which have to be implemented on the basis of 'aided self-help' with a view to facilitating technical supervision as also establishment of co-operative brick and lime kilns and workshops for producing building components.

70. About 2,000 villages have been so far selected under the scheme, but it is too early to assess its results. It has been agreed that the scheme may provide assistance not only for the construction of new houses but also for the improvement of old houses to standards which may be specified by State Governments. The scheme does not at present provide for the construction of roads and drains in the selected villages, as it has been considered that these

amenities should be made available through local efforts under the community development programme. Six research-*cum*-training centres have been established for the purpose of promoting research in improving local building materials and construction techniques and for training personnel required for rural housing cells set up by State Governments and technical and engineering field staff for executing the scheme. Under the third plan, it will be essential to link up the scheme more closely with the community development movement and to give greater attention to the setting up of brick kilns, manufacture of building components, extension of area for building new houses and improvement of housing conditions for agricultural workers, specially the landless. The organisation for providing technical assistance should be strengthened.

VILLAGE SITES FOR HOUSING, AGRICULTURAL WORKERS

71. In some States, in the land reform legislation enacted in recent years, provision has been made for conferring rights of occupancy or ownership on tenants of village house sites, but there are a number of States still in which such provisions have not been made. In a few States, there are provisions for transferring ownership on payment of compensation. It is considered that the provision of house sites on the basis of complete security and ownership is a minimum facility to be provided in all villages either free or on the basis of a nominal payment. The present arrangements in this connection are far from satisfactory in several States. In the more congested villages, the extension of the village site requires urgent action. Where this cannot be facilitated through consolidation of holdings, steps should be taken to acquire lands needed for the purpose. Wherever possible, lands vesting in the village community or in the Government should be freely utilised for the provision of house sites to the poorer sections of the village community, in particular, the landless.

5. WELFARE PROGRAMMES

72. A large number of development programmes included in the Plan have significance for the welfare of the community as a whole. The Plan contains additional provisions in the interest of particular sections of the community, notably scheduled tribes, scheduled castes and other backward classes. There are provisions also in the Plan for assisting social welfare programmes, in particular those relating to women and children. The rehabilitation programmes during the third plan relate mainly to displaced persons from East Pakistan. The tentative allocation of Rs. 25 crores for meeting the requirements of the rehabilitation programmes and the Dandakaranya project

which has been taken up to assist the settlement of East Pakistan displaced persons will be reviewed in relation to actual programmes which it is agreed to undertake. In the following paragraphs problems concerning the welfare of backward classes and those arising from social welfare programmes are briefly reviewed and attention is drawn to some tentative conclusions as to the lines along which the current programmes might be modified for execution during the third plan.

WELFARE OF BACKWARD CLASSES

73. For the welfare of backward classes, a provision of Rs. 100 crores is being made in the Third Plan. Tentatively, the allotment proposed for different groups included within backward classes programme, along with the anticipated outlay under the Second Plan, are shown below:

(Rs. crores)

	second plan anticipated outlay	third plan tentative provision
scheduled tribes	43	59
scheduled castes	27	32
others	9	9
total	79	100

SCHEDULED TRIBES

74. The progress of development programmes relating to scheduled tribes has been reviewed at a series of tribal welfare conferences, by a study team set up by the Committee on Plan Projects, the Estimates Committee and a committee appointed by the Ministry of Home Affairs to study the working of 43 special multi-purpose tribal blocks taken up during the second plan. As a result of these reviews, the following are the main directions in which programmes for the third plan will need to be strengthened and re-oriented:

(1) In the programmes for scheduled tribes and scheduled areas the general order of priority should be—(i) economic development and communications, (ii) education, and (iii) public health.

(2) Multi-purpose tribal blocks, instead of being confined to scheduled and tribal areas, could with advantage be established wherever the local population is predominantly tribal.

(3) Orientation training should be given to all workers appointed in tribal areas.

(4) For creating the right environment for cooperation and enthusiasm on the part of the tribal population, special steps should be taken to ensure that tribal rights in land and forests are fully respected. The existing arrangements concerning guarantees in respect of land and the effect of forest laws and regulations on tribal welfare should be reviewed in each State.

(5) As recommended by the study team constituted by the Committee on Plan Projects, in tribal areas, surveys of cultivable land should be undertaken and schemes drawn up specially with a view to the allotment of lands to the shifting cultivators and landless tribals. This programme should be implemented in coordination with the programme relating to re-afforestation and improvement of shifting cultivation practices.

(6) In tribal areas, the Forest Department should take special steps to ensure the employment of tribals and, as far as possible, forest labourers' cooperatives should be developed and the necessary guidance and supervision provided for them so as to ensure correct methods of forest management.

(7) In view of the existing educational backwardness, in the ordinary course the fulfilment of the target for free and compulsory education for children in the age group 6-11 years will present serious difficulties in tribal areas. The problem should be studied carefully in each area with a view to special steps being taken for the training of teachers, preparation of text books, use of tribal dialects, bringing children to school etc.

(8) A number of important industrial projects are being located in areas with tribal populations. This opens up large possibilities for the development of the tribal people, provided programmes for strengthening the educational base and for imparting technical training are also taken up without delay on a large enough scale.

A Commission has been recently appointed under Article 339 of the Constitution to review the progress made in the programmes for scheduled tribes and scheduled areas with a view to making recommendations for the future.

SCHEDULED CASTES

75. Programmes pertaining to scheduled castes have been considered recently by the study team constituted by the Committee on Plan Projects and the Estimates Committee. The following aspects merit special consideration during the third plan:

(1) A great deal of legislation has been enacted for dealing with the problem of social disabilities of scheduled castes and, progressively, administrative arrangements for enforcing these legislations are being improved. Such social disabilities as remain are to a large extent due to economic backwardness. In programmes for the welfare of scheduled castes and other backward classes the first priority should be given to economic development programmes. Since members of scheduled castes live in small groups intermixed with the rest of the population, their welfare is bound up to a large extent with that of the rest of the community. However, they require special assistance in securing fuller employment both in agriculture and in non-agricultural occupations. The working of the community development and other programmes should be reviewed in all States with a view to ensuring that these make the maximum contribution to the welfare of the backward classes and that the special provisions made for these groups are utilised to the best advantage.

(2) The stage has been reached when, among the scheduled castes themselves, those who are less well off or suffer from greater handicaps should be assured of a larger measure of assistance. This involves a degree of selection for assistance by way of scholarships, stipends, etc. Suitable criteria for such selection may be formulated by State Governments.

(3) The question whether members of backward classes should live in mixed hostels or whether separate hostels should be provided for them has been recently examined, and the general view is in favour of mixed hostels. Effect should be given to this approach during the third plan.

(4) Although regulations for recruitment to Government services provide for reservation of posts for backward classes, it is observed that the prescribed proportions are

not being reached. At the same time, there is considerable unemployment among persons belonging to backward classes who have received some measure of education. In dealing with this problem, it is necessary to make a more systematic approach with a view to ascertaining the difficulties of different sections of backward classes in each area, providing for additional training and orientation to persons receiving education, assuring scholarships and other assistance to promising students until the final stage in training leading to definite employment. It will also be necessary to place much greater emphasis on technical and vocational training for backward classes.

DENOTIFIED TRIBES

76. Since the denotification of tribes formerly described as 'criminal', various schemes for their rehabilitation and development have been taken up in the States. The economic development programmes have, however, had comparatively small impact so far. It is necessary that in each area, the problem of denotified tribes should be studied at close range and specific schemes included in the plans of States. In this connection reference may be invited to the following recommendations of the study team set up by the Committee on Plan Projects:

(1) the need for a combined correctional and welfare approach for the rehabilitation of denotified communities, which should be supported by a programme of social education,

(2) formulation of special economic programmes which keep in view the character of the population, in particular, their adventurous spirit and traditional skills,

(3) organisation of industrial and other cooperatives,

(4) provision of opportunities for employment in the public services supported by way of additional training and orientation facilities, and

(5) wherever the denotified areas constitute a sizable population, cadres of trained workers, who are familiar with their social and cultural background and can work closely with them, should be built up.

SOCIAL WELFARE

77. Over the past six years, social welfare programmes, implemented by voluntary organisations with the assistance of the Central and

State Governments have developed as an integral part of the Plans. They include the welfare extension projects undertaken by the Central and State Social Welfare Boards, programmes relating to social and moral hygiene and after-care services, social defence programmes and welfare schemes undertaken directly by the State Governments. The working of these programmes was reviewed by the study team on social welfare appointed by the Committee on Plan Projects and the Estimates Committee and detailed proposals have been made recently for the Third Five Year Plan by a working group on social welfare which included leading non-official workers.

78. As against the anticipated outlay of Rs. 19 crores in the Second Plan, the provision suggested for the Third Plan is Rs. 25 crores. The Central Social Welfare Board has assisted more than 4,500 voluntary organisations in carrying out programmes throughout the country. The main burden of social work in the community has necessarily to be borne by voluntary organisations. According to the original pattern adopted by it, the Board established 440 welfare extension projects, each serving 25 to 30 villages. In addition, about 370 welfare extension projects will have been set up in coordination with the community development programme. Under the social and moral hygiene and after-care programmes, in the course of the second plan, 50 State homes and 159 district shelters and reception centres are expected to be set up. Under the social defence programme, by the end of the second plan, 35 remand homes, 18 certified schools, 5 Borstal schools, 13 probation hostels, 25 beggar homes and 30 protective homes are expected to be established. Steps have also been taken to appoint probation officers and welfare officers in prisons.

79. As a result of the reviews of social welfare work which have been undertaken, some broad conclusions which have a bearing on the formulation of the programmes for the Third Plan have emerged. The more important of these may be briefly indicated:

(1) Welfare extension projects have led to the establishment of various welfare centres in selected areas. Arrangements for their permanent maintenance for the future need to be included in the plans of States.

(2) Attention has been drawn in the reports of different committees to the administrative problems of social welfare work, more especially to the arrangements at the State level as between Social Welfare Departments and the State Social Welfare Boards, and at the block level as between project implementing committees and panchayat samitis. It has also been emphasised that there should

be greater coordination between different Ministries and agencies at the Centre, specially in sanctioning grants-in-aid to voluntary bodies, so that there is no overlapping or duplication.

(3) Voluntary organisations are playing an increasingly important role in social welfare work and have succeeded in drawing large numbers of social workers specially women, into the field of public service. Many of them, however, lack trained personnel and the element of continuity in the programmes taken up by them. The study team of the Committee on Plan Projects indicated the lines along which voluntary associations might review the programmes undertaken by them and strengthen their organisations for more effective service.

(4) The working group on social welfare has recommended as priorities for the Third Plan in the field of social welfare, firstly the needs of children; secondly, the needs of women specially for educational and employment opportunities; and thirdly, the needs of those suffering from other handicaps, whether physical or mental, social or economic. The working group, following the report of the study team, has further suggested that instead of concentrating on residential institutional services, voluntary agencies should try to develop community services for assisting various groups as far as possible in their family and social settings.

(5) For ensuring that the different agencies in the Central Government act together and along the same lines in assisting programmes relating to child welfare, a coordination committee has been set up within the Cabinet Secretariat. In this connection, reference may be made to a useful proposal from the working group on social welfare that the efficacy of various programmes and methods in this field should be tested through a small number of pilot projects in which all services relating to child welfare are organised in a coordinated manner. This suggestion needs to be taken up as part of the preparatory work for the Third Five Year Plan.

(6) The following priorities have been recommended for services falling within the field of social defence:

(a) prevention and treatment of juvenile delinquency;

(b) moral and social hygiene programmes and enforcement of the Suppression of Immoral Traffic Act;

(c) probation, supervision and follow-up services;

(d) after-care services;

(e) prevention and treatment of beggary and vagrancy; and

(f) welfare services in prisons with special reference to women prisoners and their children and vocational training, diversification and modernisation of trades having a direct bearing on the rehabilitation of the prisoners;

(7) Among the handicapped groups, priority is recommended for the blind, the deaf, the mute, the orthopaedically handicapped and the mentally deficient. It is also proposed that, although institutional services are essential for these groups, to the extent possible, non-institutional services should also be developed.

80. A recent development has been the establishment of night shelters in a few cities. The programme needs to be extended during the third plan. Provision for this is being made in the social welfare and housing programmes.

81. In an earlier chapter, reference has been made to the scope for urban community development based on mutual self-help. A pilot project undertaken by the Delhi Corporation provides useful experience which may be applied in other cities, to begin with, on a small scale with a view to gaining experience and training workers.

PROHIBITION

82. Proposals relating to the programme for prohibition were reviewed in the Second Plan which made suggestions regarding the discontinuance of advertisements and stoppage of drinking in public premises and at public receptions. Several State Governments have taken measures placing restrictions on public drinking and have extended dry areas and increased the number of dry days. Steps have also been taken to encourage soft drinks. A Central Committee for Prohibition has been constituted to review the progress of prohibition and coordinate activities in different States and consider measures for resolving difficulties that might be experienced in implementing the policy of prohibition.

REHABILITATION

83. The rehabilitation of displaced persons from West Pakistan has been now more or less accomplished. The programmes for rehabilitation in the Third Plan, therefore, relate to displaced persons from East Pakistan. The programmes to be undertaken concern provision of housing, development of industries, education and training and other schemes. Another large programme in progress is that relating to Dandakaranya project which is intended for the rehabilitation of displaced persons from East Pakistan and the local tribal population. The tentative allocation included in the Plan at present will be revised in relation to the actual programmes.

CHAPTER VII

TECHNICAL MANPOWER AND SCIENTIFIC RESEARCH

1. TRAINING PROGRAMMES IN THE PLAN

THE assessment of manpower requirements and the training of technical personnel are among the basic conditions for economic development. During the second plan period, manpower studies have made considerable progress. Advance action has been initiated for the training of technical manpower likely to be needed in the third and fourth plans.

2. These training programmes may be considered under the following categories:

(1) engineering personnel, including craftsmen and teachers for institutions;

(2) scientific personnel;

(3) personnel for agriculture, community development and cooperation;

(4) personnel for service in the fields of education, health and welfare programmes; and

(5) personnel for administration and statistics.

ENGINEERING PERSONNEL

3. The programme of expansion recommended by the Engineering Personnel Committee in 1956, was enlarged in 1958 when a fresh estimate of the requirements of the Third Plan was prepared. The following Table brings out the progress of engineering colleges and polytechnics:

Technical institutions—engineering colleges and polytechnics

year	colleges			polytechnics		
	no. of institutions	annual intake	out-turn	no. of institutions	annual intake	out-turn
1950	49	4,119	2,198	86	5,903	2,478
1955	65	5,888	4,017	114	10,484	4,499
1960	97	13,165	5,310	197	2,4020	10,397

4. Estimates of requirements of engineering personnel in the third plan period in different sectors are shown below:—

	degree	diploma
agriculture and community development	1,000	2,300
irrigation and power	7,500	14,500
industries & minerals including small industries	22,300	29,700
transport & communications	4,000	8,600
social services	4,200	1,700
construction programmes	4,500	21,000
others	2,000	2,300
total	45,500	80,100

The requirements and the availability of engineering personnel in different categories at the degree and diploma level during the third plan (1961—66)* have been estimated as follows:—

engineering & technology group	degree holders			diploma holders		
	demand	supply	(+) surplus **shortage(—)	demand	supply	surplus (+) shortage(—)
civil	12,500	16,700	+4,200	40,000	40,000	..
mechanical	11,500	13,000	+1,500	17,500	16,500	—1,000
electrical	11,000	12,700	+1,700	14,000	12,500	—1,500
tele-communications	2,500	2,100	—400	500	400	—100
chemical	2,300	2,300	...	..	..	..
metallurgical	1,100	1,000	—100	800	100	—700
mining	1,800	1,500	—300	4,000	2,500	—1,500
others	2,800	2,400	—400	3,300	4,000	+700
total	45,500	51,700	+6,200	80,100	76,000	—4,100

It will be seen that the requirements of degree holders and diploma holders in the third plan will be generally met, surpluses and shortages being marginal and capable of adjustment as the plan proceeds.

5. A degree course in engineering involves training over a period of four or five years, followed by practical training extending over three or four years. Advance steps have therefore to be taken several years ahead. The estimate of demand during the fourth plan is for

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*The figures in the table have been rounded.

**Supply under degree holders also includes about 2,000 other engineers qualified for A.M.I.E. or trained abroad.

75,000 degree holders and 1,20,000 diploma holders against a supply of 57,000 degree holders and 94,000 diploma holders on the basis of existing training facilities. Additional training facilities have to be provided during the third plan for about 18,000 engineering graduates in different categories and for about 26,000 diploma holders. For this purpose the existing intake for degree courses will be increased under a phased programme by 5,000 and for diploma courses by 10,000 in regular institutions. Additional intake of 1,000 for degree courses and 5,000 for diploma courses is proposed through part-time and correspondence courses.

TRAINING OF CRAFTSMEN

6. It is roughly estimated that for the industrial and other programmes which are to be carried out during the third plan there will be need for about 7,50,000 craftsmen in engineering trades and about 3,50,000 in non-engineering trades. There were 59 training centres for craftsmen in 1956 with training facilities for about 10,500. In 1961 there will be 152 industrial training centres with training facilities for 42,000, in addition to facilities established for the training of displaced persons. The programmes of expansion proposed for the third plan include the creation of additional training facilities for 55,000 under the scheme for craftsmen and 14,000 under the national apprenticeship scheme. The number of training institutes is expected to increase to about 250 by the end of the third plan. The total out-turn of craftsmen during the plan will be about 200,000. The scheme for the training of craftsmen in institutions also provides for in plant training for a period of six months. The Ministry of Labour and Employment envisages legislation for regulating training programmes in industry, including arrangements for apprenticeship. Under the evening classes scheme it is proposed to expand facilities for imparting theoretical training to the industrial workers who are already engaged in jobs from about 3,000 to about 15,000 seats.

7. The requirements of the Railways and the Defence establishments are being met through their own programmes. The Railways have existing arrangements for training their unskilled and semi-skilled workers. Arrangements also exist for enabling those industrial workers who have no recognised qualifications in the trades to obtain the National Certificate of Craftsmanship by taking trade tests organised by the National Council for Training in Vocational Trades as private candidates. In certain trades a large number of persons acquire skills through traditional methods of training.

OTHER TRAINING PROGRAMMES

8. Besides the training programmes of the all-India Boards including Small Scale Industries Board, Coir Board, Central Silk Board, Handloom Board, Handicrafts Board, Khadi and Village Industries Commission, State Governments also offer special facilities for training. For the small scale industries, it is proposed to reorganise the training-cum-production centres already set up by the State Governments into centres either purely for training or for production and also to set up training centres for trades not covered under the scheme for training craftsmen. Special training facilities available in the Small Industries Service Institutes and the Extension Centres are also proposed to be extended so as to meet the requirements of managerial, supervisory and extension personnel. The requirements of supervisors and managerial personnel for the small industries programme have been estimated at 10,000 and 7,200 respectively.

9. A number of Central Ministries and Departments associated with them have special in-service or practical training programme. Among these mention may be made of the National Laboratories, the Atomic Energy establishment, the Ministry of Irrigation and Power, Railways, the Indian Meteorological Department and the All-India Raido. Similarly, some of the industrial units in public and private sectors also maintain special training facilities.

TRAINING OF TEACHERS FOR TECHNICAL INSTITUTIONS

10. It has been estimated that about 4,800 additional teachers will be required in the third plan for institutions imparting training at the diploma level. Training colleges for this purpose will be established under the Third Plan. For engineering colleges the further requirements of teachers have been estimated at 4,600. For increasing the supply of teachers two schemes were introduced during the second plan. These will be expanded. The first is the teacher-training scheme under which fellow-ships are offered to selected graduates who are then given further training. In 1959, 109 fellowships were sanctioned. The second scheme relates to the training of teachers abroad, under which 250 engineers were selected in 1959.

11. The additional requirements of instructors in crafts are estimated at about 8,500. At present there are two central training institutes with a total capacity of about 300. Their capacity is to be increased to 650. The capacity of the central training institute for women instructors in crafts is to be raised from 32 to 112. Four additional central training institutes are proposed to be established with

a total capacity of about 1,000. The total additional capacity for training instructors will be 1,330, the out-turn from the various institutions during the third plan being about 8,000. It is intended to complete the programme of expansion by the middle of the plan period.

SCIENTIFIC PERSONNEL

12. The National Register of the Council of Scientific and Industrial Research provides information about the pattern of employment of scientific personnel. In March 1960, the total registration in the National Register stood at 57,000. This includes 53,000 registrants in the 'general' section and 400 in the 'Indian abroad' section, the broad distribution being as follows:—

	general register	indian abroad section
scientists	17,209	1,056
technologists	3,837	359
engineers	28,792	1,901
medical personnel	3,228	332
business administration	..	309
total	53,066	3,957

A Scientists' Pool was set up in 1959 for immediate placement of well-qualified Indian scientists and technologists prior to regular employment in position for which they are fitted.

13. During the second plan, there was shortage of science teachers in secondary schools and science departments of colleges and universities. For the National Laboratories and other institutions scientists with post-graduate degrees are required in increasing number. To meet these needs the intake of science students in colleges and universities is proposed to be raised. Out of 900,000 students at present about 270,000 take science. It is proposed that out of 1·3 million students in colleges expected by the end of the third plan period over 500,000 should take up science, thus raising the existing percentage of science students from 30 to 40.

AGRICULTURE AND RURAL DEVELOPMENT

14. The requirements of agricultural graduates during the third plan period are estimated at 16,000 and of veterinary graduates at

6,800. The following Table indicates the training facilities for graduates in agriculture and veterinary science:

	year	no. of institutions	annual intake	annual out-turn
agricultural graduates	1951	19	1,060	1,122
	1955	30	1,989	806
	1961	39	4,500	2,231
veterinary graduates	1951	8	434	242
	1955	14	1,269	322
	1961	16	1,300	1,100

The training facilities provided by the end of the second plan are expected to meet the requirements of the Third Plan. The requirements of the fourth plan are at present estimated at about 27,500 for agricultural graduates and about 7,000 for veterinary graduates, but these are being further examined with a view to working out proposals for expansion of training facilities during the third plan.

15. Requirements of technical personnel for dairy development during the third plan are estimated at about 3,000. The necessary trained personnel will be available from facilities which have been already established.

16. Training facilities for providing personnel for the development of fisheries, estimated at around 2,000, are at present inadequate and the requisite facilities are being established at the research stations in Calcutta, Mandapam and Bombay and other institutions.

17. The requirements of forest personnel during the third plan are estimated at about 400 forest officers and about 1,100 forest rangers. These will be met through training facilities at Dehradun and Coimbatore.

18. The Third Plan envisages considerable expansion in the soil conservation programmes, the requirements for trained personnel being estimated at about 400 officers, 2,000 assistants and 6,000 other personnel. The details of the training programme are under consideration.

19. As part of the community development programme, training facilities have been arranged for the different categories of personnel needed, including Block Development Officers, Social Education Officers and specialised personnel. By the end of the second plan 100 extension training centres for training village level workers will come into existence. The total output of village level workers by

October 1963 will be about 50,000. Facilities for training women village level workers exist in 37 extension training centres which are equipped with home science wings; the number of these institutions is proposed to be increased to 69. Among the major training programmes organised under the auspices of the Ministry of Community Development and Cooperation are the arrangements for training non-official workers, including Gram Sahayaks. These are being considerably expanded.

20. Large scale expansion of training programmes for different grades of cooperative personnel is envisaged during the third plan. This includes increase in the number of senior personnel trained at Poona from about 500 to 1,400. The number of persons trained in specialised fields like marketing, land mortgage banking,etc. is expected to be 8,000 in the third plan compared to 1,700 in the second. For intermediate and block level cooperative personnel the necessary training facilities have been established during the second plan. The number of training centres for junior cooperative personnel is to be increased from 60 to 100, the number of persons trained rising from 34,000 to 56,000.

PERSONNEL FOR EDUCATION AND OTHER SOCIAL SERVICES

21. The programme for the expansion of education in the third plan entails a large increase in the requirements of teachers. These are estimated at 420,000 for primary schools, 120,000 for middle schools, 85,000 for secondary schools and 27,000 for colleges. The percentage of trained primary and middle school teachers is to be raised from 65 at the end of the second plan to 80 at the end of the being from 68 to 75 per cent. Arrangements for providing the nces-
being from 68 to 75 per-cent. Arrangements for providing the necessary training facilities are being made.

22. By the end of the second plan, the annual intake capacity of the 55 medical colleges which have been established will be about 5,000, the out-turn being a little over 3,100. Proposals for the expansion of medical education in the third plan are under consideration.

23. During the second plan there has been considerable increase in the facilities available for the training of social welfare workers. These include 12 schools of social work with an average annual out-turn of 400 to 450 which offer a two-year course, 5 other schools with an average annual out-turn of 460, and 24 centres maintained by the Kasturba Gandhi National, Memorial Trust for training

women village level workers. Senior and supervisory personnel required for work among the backward classes, specially scheduled tribes, are trained at the institutes which have been established at Ranchi, Chindhwada and Calcutta. In the field of social welfare one of the most important aspects is to arrange for the training of large numbers of non-official workers at the group and community level. The assistance of voluntary organisations and educational institutions has to be availed of for this purpose.

ADMINISTRATION AND STATISTICS

24. A National Academy of Administration and a Directorate of Training have been set up at Mussoorie offering a combined course of training for the All-India Class I Central Services. The establishment of the Administrative Staff College, Hyderabad, and the organization of the Industrial Management Pool are the other steps which have been taken during the second plan. It is expected that the State Governments will shortly review their requirements during the third plan period of administrative personnel at all levels for the implementation of their plans and work out further proposals. During the second plan courses of business administration and management have been set up at seven institutions, two of which also provide education in industrial and production engineering. Facilities in this field are proposed to be increased during the third plan. A proposal for setting up an All-India Institute of Management is under consideration.

25. A number of steps have been taken in recent years in developing facilities for the training of statisticians. A series of in-service training courses are provided by the Central Statistical Organization, the Indian Council of Agricultural Research and the All-India Institute of Hygiene and Public Health. State Statistical Bureaus have arranged for the training of district statistical officers, progress assistants in community development blocks and other personnel. The Indian Statistical Institute, which has been declared by law an institution of national importance, is expected shortly to provide courses for the degrees of Bachelor and Master of Statistics. The institute provides a two-year professional statisticians' course and is also arranging for a number of other training courses, including those at the International Statistical Education Centre, Calcutta and courses in statistical quality control. In the field of demography, training is provided at the Demographic Training and Research Centre, Bombay. The Bureau of Industrial Statistics in Calcutta arranges for training in industrial statistics. Statistical requirements of planned development are increasing rapidly. It is proposed to expand the existing facilities to the extent necessary to secure the requisite personnel.

2. SCIENTIFIC & TECHNOLOGICAL RESEARCH

26. The programmes of scientific and technological research under the Third Plan aim at—

(1) strengthening the existing research institutions;

(2) expanding facilities for research over a wide range;

(3) bringing about closer coordination between research carried out in the national laboratories, the Atomic Energy Establishment, the universities, technical institutions and research institutes, research wings of Government Departments, State Government laboratories and industrial establishments;

(4) training of research personnel and provision of adequate number of research fellowships and scholarships for the purpose;

(5) carrying out research in the development and manufacture of scientific and industrial instruments, and more generally;

(6) carrying knowledge and application of science and technology into the everyday life of the community.

27. The tentative allocation during the third plan for the research schemes of the Ministry of Scientific Research & Cultural Affairs and the Atomic Energy Commission amounts to Rs. 50 crores. This is in addition to the allocations for research made under the appropriate heads for specific fields dealt with by the Ministries of Education, Transport and Communications, Information and Broadcasting, Railways, Works, Housing and Supply, Irrigation and Power, Food and Agriculture, Health, Steel, Mines and Fuel, and Commerce and Industry.

A number of proposals have been drawn up for the expansion of facilities for scientific and technological research by the Council of Scientific & Industrial Research, the Ministry of Scientific Research & Cultural Affairs, and the Atomic Energy Commission. These have been considered in a preliminary way, and detailed examination will be undertaken in the course of the next few months. If necessary, the present tentative allocation of Rs. 50 crores for scientific and technological research will be revised to provide for all essential programmes.

28. The progress made during the first and second Plans as well as the programmes proposed for the Third Plan are set out briefly in the following paragraphs.

COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH

29. Under the First Plan, 14 national laboratories were established by the Council of Scientific & Industrial Research. These provided for advanced research in physics, chemistry, metallurgy, fuel, glass and ceramics, food, drugs, roads, leather, electro-chemistry, buildings, salt, electronics and botany. Under the Second Plan, 9 more institutions have been established. Among the fields served are biochemistry and experimental medicine, mining, mechanical engineering, public health engineering and aeronautical research. Regional resarch laboratories have been set up in Hyderabad, in Jammu and Kashmir and in Assam. An industrial and technological museum has been established at Calcutta. In addition, research centres have been set up for rain and cloud physics, low-shaft furnace techniques, gas turbines, essential oils, medicinal plants, wind power and earthquake engineering. The Council is also assisting cooperative research units for rubber, paints, silk and art silk, and cotton textiles.

30. Under the Third Plan, new institutions are proposed to be established under the auspices of the Council of Scientific & Industrial Research for research in such fields as biology, petroleum technology, and the development of scientific instruments. Additional cooperative research units for cement, mica, foundry, radio and electronics will be set up. Documentation facilities will also be further expanded.

31. Problems of utilisation and disposal of industrial and agricultural wastes have received attention during the second plan. Among these, special mention may be made of the utilisation of blast furnace slag for the production of cement and of basic open hearth slag as fertiliser, complete recovery of by-products of coking and coal distillation, conversion of city sewage and garbage into fuel gas and fertiliser, extraction of oil from rice bran, utilisation of bagasse for making paper, pulp board, etc., complete utilisation of molasses for making alcohol, production of glue and gelatin from animal waste, utilisation of paddy husks, groundnut husks, jute wastes and other ligno-cellulosic wastes for making plastics, active carbon, etc. Research work in these and other fields will be further developed during the third plan.

32. There is still a wide gap between the completion of research in any field and the practical application of the results obtained. This is accounted for by a variety of reasons, such as reluctance on the part of industry and Government departments to undertake extensive trial of new processes and techniques evolved as a result of research within the country, inadequacy of pilot plant facilities, lack of

designs organisations and paucity of engineers and consultants for designing and fabricating production plants. The need for eliminating these shortcomings is realised and the Third Plan will include proposals for achieveing this object. It is essential that technical and scientific workers in the country should be enabled to develop as speedily as possible industries based on the results of research.

MINISTRY OF SCIENTIFIC RESEARCH AND CULTURAL AFFAIRS

33. Various organisations under the Ministry of Scientific Research and Cultural Affairs have drawn up detailed proposals for work during the third plan. These include the Survey of India, the National Atlas Organisation, the Botanical Survey, the Zoological Survey and the Central Board of Geo-physics.

34. A number of research institutes and scientific associations, such as the Raman Research Institute, the Bose Institute, the Birbal Sahni Institute of Palaeo-botany, the Indian Association for Cultivation of Science, and others have been assisted by the Ministry of Scientific Research and Cultural Affairs. The Ministry also assists a number of other leading scientific associations in their research. These associations will continue to serve as valuable forums for consideration by groups of scientists of the results obtained and of various programmes and problems of research.

35. Special emphasis will be placed during the third plan on the expansion of facilities for basic research in universities and technical institutions and on their being adequately equipped to carry out research projects sponsored by Government departments and by industry. This will increase the scope of research activities undertaken in technical institutions and in the science departments of universities, and will provide opportunities to research workers for applying the results of basic research to field and factory problems.

NATIONAL RESEARCH DEVELOPMENT CORPORATION

36. With the object of exploiting processes developed in the national laboratories and other research institutions, a National Research Development Corporation was set up in 1953. Up to March 1959, out of 500 inventions and processes registered, only 21 had been used for commercial production and 46 had been licensed, but not yet utilized in production. In view of the meagre results obtained so far, the question of speedy application of the results of research in various fields on a large enough scale is being examined in all its aspects.

SCIENTIFIC INSTRUMENTS AND OTHER SCHEMES

37. A scheme for producing scientific instruments within the country has been drawn up and is to be implemented during the third plan. For this purpose, the Council of Scientific & Industrial Research has established a Central Scientific Instruments Organisation.

38. There is increasing demand for high level research personnel in various fields of science, engineering and technology. Steps are, therefore, being taken to expand training facilities at the national laboratories and at other institutions by making scholarships, fellowships, etc., available on a larger scale than hitherto.

39. During the second plan, 37 Vigyan Mandirs have been established. These are intended to serve as extension centres for scientific knowledge at the community level. The programme for the third plan will be prepared after reviewing the work done by the centres which have been already set up.

ATOMIC ENERGY

40. The Atomic Energy Commission is engaged in developing the use of nuclear energy for the production of electrical power, developing new uses of isotopes in agriculture, biology, industry and medicine, producing the isotopes needed, and promoting their widespread use. Since India has the most important deposits of thorium in the world, the aim is to base the ultimate nuclear power production in the country on thorium. This is to be achieved through a multi-stage nuclear power programme.

41. In 1956 the Department of Atomic Energy designed and built a research reactor of the swimming pool type, ('Apsara'), for which only the fuel elements containing enriched uranium were obtained from abroad. The construction of the Canada-India Reactor of the NRX type, a gift from Canada under the Colombo Plan, has been completed. This reactor is a large isotope producer and is specially designed for engineering and loop experiments necessary for the design of future power reactors and for the testing of materials used in them. A third, zero energy reactor ('Zerlina'), for physical experiments relating to the core design of the future power reactors has been designed and fabricated and its erection will be completed within the next few months. Work has been started on the design of a prototype power reactor with an electrical output of about 15 MW, which will use natural uranium as fuel, heavy water as moderator, and organic as coolant. The construction of this prototype reactor is expected to be completed during the third plan, so that the next step may be taken to design the construction of large nuclear power stations of Indian design and fabrication.

42. Research and development work in the field of atomic energy is undertaken at the Atomic Energy Establishment at Trombay which was inaugurated in 1957. The Establishment has a staff of about 1,200 graduate scientists and engineers. This number is expected to increase to about 2000 in the course of third plan. The present training programme of the Establishment in nuclear science and technology is proposed to be further extended during the third plan. Success in building up of a body of highly trained technical personnel needed for developing the atomic energy programme has been a most important aspect of the atomic energy programme.

43. The atomic energy programme has be based on research covering different scientific disciplines. The Atomic Energy Establishment has a large number of research Divisions, such as Analytical Division and the divisions for Chemistry, Metallurgy, Electronics, Isotopes and Biology. Almost all the electronic instruments used at Trombay are fabricated in the Electronics Division, which has now been expanded to meet the needs of nuclear electronics instrumentation for the entire country. During the third plan, the Division is expected to fabricate instruments of the value of about Rs. 8 crores. Almost the entire demand for isotopes in the country is being met by the Establishment and a comprehensive programme of isotope production is to be undertaken during the third plan. The Atomic Energy Commission is administratively responsible for the Tata Institute of Fundamental Research, which undertakes advance study and fundamental research in nuclear science and mathematics. Besides supporting a number of research institutions, the Department has set up facilities for high altitude work in cosmic rays, biology, physiology, etc.

OTHER RESEARCH PROGRAMMES

44. Several Ministries in the Government of India have specialised research organisations under them. Financial provisions for their programmes are made in the Plan under the appropriate heads. In this connection, reference may be made to the work of the India Meteorological Department, the Central Research, Design and Standardisation Organisation of the Ministry of Railways, the National Buildings Organisation, the Central Water and Power Research Station at Khadakvatsala, the Indian Council of Agricultural Research, the All-India Institute of Medical Sciences, the Indian Council of Medical Research, the Research Department of the All India Radio and the Switchgear Development and Testing Laboratory at Bhopal. Mention may also be made of the proposed Institute for Power Research at Bangalore.

CHAPTER VIII

AGRICULTURE AND THE RURAL ECONOMY

1. AGRICULTURAL PRODUCTION

PROGRESS UNDER THE FIRST AND SECOND PLANS

THE progress of agricultural production during the first and second plans is shown in the following Table:

commodity	unit	production					
		1949-50	1950-51	1955-56	1956-57	1957-58	1958-59
rice*	million tons	23.7	20.9	27.1	28.6	24.9	30.4
wheat*	,, ,,	6.6	6.6	8.6	9.3	7.7	9.7
all cereals*	,, ,,	48.4	43.7	54.9	57.4	53.0	61.3
pulses*	,, ,,	9.2	8.5	10.9	11.4	9.5	12.2
foodgrains* (cereals & pulses)	,, ,,	57.6	52.2	65.8	68.8	62.5	73.5
oilseeds	,, ,,	5.1	5.1	5.6	6.2	6.1	7.0
sugarcane (gur)	,, ,,	4.9	5.6	6.0	6.8	6.9	7.2
cotton	million bales	2.6	2.9	4.0	4.7	4.7	4.7
jute	,, ,,	3.1	3.3	4.2	4.3	4.1	5.2

2. At an early stage in the formulation of the Second Plan it was recognised that the programme of rapid economic development with special emphasis on heavy industries embodied in the Second Plan would demand a largely increased agricultural production. The provisional targets suggested in the report on the Second Plan were considered in detail in consultation with State Governments and the following targets were accepted in November 1956 for the second plan period: foodgrains, 80·5 million tons; oilseeds, 7·6 million tons; sugarcane, 7·8 million tons; cotton, 6·5 million bales; and jute, 5·5 million bales.

3. Agricultural plans of States were reviewed so as to ensure that the programmes for the multiplication of improved seeds, for the use of fertilisers, irrigation, soil conservation, etc., were imple-

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* The coverage of crop statistics gradually increased in the course of the first five-year plan and from time to time changes were also introduced in the techniques of estimation. The estimates of production of foodgrains in the table have been adjusted for these changes upto 1956-57.

mented so as to yield the utmost benefits within the shortest time. In regard to the area under paddy and wheat which had secure irrigation facilities or assured rainfall, it was suggested to State Governments that there should be carefully worked out programmes for covering every acre of land with improved seed and the supply of fertilisers and organic and green manures ensured. It was recognised that at later stages in the Plan it might be necessary in some instances to provide small additional allotments. Over the period of the second plan, in making year-to-year allocations, the effort has been to provide larger resources for agriculture. For minor irrigation, the initial provisions were substantially enhanced. The supply of nitrogenous fertilisers was increased from about 100,000 tons in 1955 to about 240,000 tons of nitrogen in 1959, the supply of phosphatic fertilisers also increased from 13,000 to 55,000 tons during this period.

4. Over the past decade large investments have been made on agricultural programmes and on the expansion of irrigation facilities. It is necessary to ensure that the fullest use is made of the facilities so created. There should be for each village a production plan which includes the fullest use of the irrigation facilities provided, arrangements for multiplication at the village level of the principal seeds required, production in the village of the requisite quantities of organic and green manures and distribution of fertilisers. The village panchayat and the cooperative and the national extension agency should ensure that each family has an integrated plan for the use of approved seeds, fertilisers and organic and green manures on its holding and that every family is assisted with short-term credit in money or kind or both for this plan.

The most important task, therefore, is for the community development agencies to organise efficiently the supplies, services and technical assistance needed by the farmers. Through village production plans and programmes of cooperative development every single agricultural family should be drawn into the common effort.

5. Over the past year studies have been undertaken both at the Centre and in the States with a view to working out suitable targets for agricultural production. These estimates are necessarily preliminary in character. They are intended to provide a basis for detailed agricultural programmes to be undertaken at the local level, in districts, blocks and villages, in relation to the practical possibilities which are open to them and the efforts which can be actually mobilised. It is proposed, that, while keeping the

national and State targets in view, the district and block extension workers and the local leadership in each area, as represented specially in cooperatives, panchayats and panchayat samitis, should formulate their local targets. In formulating the village and block plans, special attention has to be given to—

(1) customary obligations; digging field channels for utilising irrigation, maintenance of tank bunds, desilting of tank beds and maintenance of field channels;

(2) arrangements for the multiplication of approved seed, production of organic and green manures, distribution of these and of fertilisers;

(3) contour-bunding and dry farming programmes.

Besides contributing to increase in agricultural production, programmes for the enforcement of customary obligations, contour-bunding and dry farming will help in the utilisation of the surplus manpower of rural areas. By concentrating efforts on these programmes, each area will be expected to work out for itself how far it can contribute to increase its agricultural production. In each area the present difficulties and bottlenecks should be examined and practical steps devised for removing them.

6. The final agricultural targets for the Third Plan will, thus, emerge towards the later part of the current year when the processes described above have been more or less completed. To assist State Governments in providing the necessary guidance to district and block authorities in working out local agricultural plans, indications have been given regarding the phasing of irrigation benefits from large and medium projects, tentative schedules for the supply of fertilisers and the provisional targets and allocations for programmes, such as, minor irrigation, soil conservation and dry farming.

PROGRAMMES FOR INCREASING AGRICULTURAL PRODUCTION

7. Before referring to the targets of production for foodgrains and other agricultural crops it will be useful to review briefly the principal technical programmes for increasing agricultural production which are envisaged for the Third Plan. The major programmes around which intensive work has to be organised in each area are: (1) irrigation, (2) soil conservation, dry farming and land reclamation, (3) supply of fertilisers and manures and (4) better ploughs and improved implements.

8. *Irrigation.*—From large and medium projects the additional area to be benefited will be about 13 million acres or, after allowing for areas sown more than once, about 11·5 million acres. From minor irrigation schemes, it is considered that the minimum additional area to be benefited should be about 13·5 to 14 million acres (gross), about 10 million acres being irrigated from schemes financed by provisions under the agricultural programmes and about 3·5 to 4 million acres from those under the community development programme. The net area to be irrigated from these programmes will be 12 million acres. After making allowance for depreciation and the fact that some of the works undertaken are primarily for stabilization of existing irrigation, the net irrigated area of the country is expected to increase from about 70 million acres at the end of the second plan to about 90 million acres at the end of the third plan. Extension of irrigation on this scale, which could be further stepped up if the programme for the fuller utilisation of rural manpower resources is effectively implemented, will provide considerable scope for the expansion of double cropping and for increase in yields.

9. *Soil Conservation, dry farming and land reclamation.*—In the unirrigated areas the agricultural programmes which are at present placed before the people are generally inadequate. It is, therefore, of the utmost importance that in these areas large-scale soil conservation and dry farming should be undertaken on the basis of mass participation on the part of the communities concerned. With this in view, the following tentative targets have been proposed. These are to be worked out in detail according to the conditions and possibilities of each area:

	million acres
soil conservation with contour bunding	13
other soil conservation programmes including river valley projects	2
dry farming practices	40
land reclamation	1
reclamation of saline and alkaline lands	0·4
flood control, drainage and water-logging.	5·0

10. *Fertilizers and manures.*—By the end of the third plan it is proposed to increase the consumption of nitrogenous fertilisers from about 360,000 tons at the end of the second plan to 1 million tons in terms of nitrogen and of phosphatic fertilisers from about 67,000 tons to about 400,000 to 500,000 tons in terms of P_2O_5. The programmes relating to urban composting are estimated to benefit 24 million acres. The target for the additional area which should benefit from green manures is proposed at about 50 million acres.

11. *Seed multiplication.*—A comprehensive programme for setting up seed farms for the production of foundation seed of improved varieties was taken up in the second plan, the object being to provide sufficient seed of improved varieties for multiplication at the village level. Generally speaking, a seed farm of 25 acres was located in every community development block, with variation in certain areas to suit local conditions. By the end of the second plan it is estimated that 4,000 seed farms will have been set up. In the third plan such additional farms will be set up as may be necessary. The seed required for each village has to be multiplied in the village itself from the foundation seed supplied by the seed farm. Work in this direction has to be intensified in the third plan. An additional area of about 150 million acres is proposed to be covered by the programme during the third plan.

12. *Plant protection.*—Organisations for pest and disease control exist in some of the States. These will be strengthened during the third plan, where necessary so that by the end of the plan period they may be able to afford protection to an extent of 75 million acres. The programme will also include the supply of manually operated dusters and sprayers to farmers.

13. *Better ploughs and improved agricultural implements.*—A serious gap in the agricultural programmes carried out during the past decade has been in the field of improved agricultural implements. Despite frequent consideration of the subject at the expert level and general recognition of the importance of improved tillage and harvesting practices for scientific agriculture practical action has invariably lagged behind. As a recent study points out, progress in the introduction of improved agricultural implements calls for steps at the same time in a number of directions:

> "First, the improved implement must be identified as being superior. Its value must then be domonstrated to the cultivator. There must be a manufacturer prepared to invest capital to provide not only the machine but the necessary spare parts as well. For this he must be allocated steel. The manufacturer must also develop a sales organisation. And finally, artisans must be trained who are competent to make repairs for the cultivator. Each link in this chain of activities must operate successfully or the entire programme breaks down."

Surveys of implements in use in different parts of the country have been undertaken by the Indian Council of Agricultural

Research. Four regional research-*cum*-testing centres for bullock-drawn implements are being set up. At these centres, various implements will be tested and further improved upon and arrangements made for their manufacture and supply. In consultation with the States, a number of agricultural implements have been selected for production on a large scale, but the necessary arrangements for production have still to be made. Investigating teams of the Ministry of Commerce and Industry have also carried out inquiries into the economic and technical problems of manufactures of agricultural implements in the northern, southern, eastern and western regions.

With the studies which have been already made it is proposed in the coming months to prepare a detailed development programme for agricultural implements as an essential feature of the Third Plan. This will include measures relating to (a) selection and demonstration of the improved implements which have been already established, (b) training of village blacksmiths and carpenters in the repairs and manufacture of improved implements, and (c) closer cooperation between research and extension agencies and those engaged in the manufacture of implements industry along with more satisfactory arrangements for the supply of steel and for transport and distribution. Arrangements are proposed to be made in every State for the establishment of at least one centre run by Government for the manufacture of agricultural implements of improved types to which other manufacturers can turn for technical advice, designs and other guidance. In the community development blocks also, the provision of facilities, including credit, for the adoption of improved implements has now to be taken up as a primary extension programme.

14. *Intensive agricultural districts programme.*—Besides implementing the programmes described above, it is proposed to make an intensive effort to increase agricultural production in selected areas where, on account of the availability of irrigation and assured rainfall, conditions appear favourable. For this purpose, to begin with, one district is being selected in each State. In these districts a concentrated effort will be made to reach all farmers through cooperatives and panchayats and to organise village production plans which will involve all agricultural families. In the past, the coverage in community development areas has been limited because of time lags in the utilisation of irrigation and inadequate supplies of fertiliser, improved seeds and credit. It is hoped to overcome these deficiencies in the selected districts so that the total effort of the community can be developed as fully as possible.

TARGETS OF AGRICULTURAL PRODUCTION

15. The targets of agricultural production which are envisaged at present for the Third Plan are summarised in the following Table:

commodity	unit	production in 1958-59	expected production in 1960-61	target of total production in 1965-66	percentage increase during 1965-66 over 1960-61
foodgrains	million tons	73·5	75·0	100—105	33—40
oilseeds	,, ,,	7·0	7·2	9·2—9·5	28—32
sugarcane	,, ,,	7·2	7·2	9·0—9·2	25—28
cotton	million bales	4·7	5·4	7·2	33
jute	,, ,,	5·2	5·5	6·5	18
coconut	million nuts	4455	4500	5750	28
arecanut	thousand tons	85	93	100	8
cashewnut	,, ,,	69	73	150	106
pepper	,, ,,	26	29	30	3
cardamom	,, ,,	n.a.	2·26	2·62	16
lac	,, ,,	33	50	62	24
tobacco	,, ,,	263	300	325	8
tea	million lbs.	716	725	850	17
coffee	thousand tons	44	45	80	78
rubber	,, ,,	25	26.4	45	71
all commodities		—	—	—	30—33

On account of uncertainties inherent in agriculture and the fact that detailed programmes have still to be worked out at the field level, at this stage it is considered desirable to present agricultural targets as a range of levels of output that might be reached on certain assumptions or at best as approximations. The estimates of production in the last year of the second plan are also necessarily rough guesses at this stage.

16. The targets of commercial crops mentioned above are based on an assessment of the requirements of different industries and the increases in output which appear to be feasible according to the specific development programmes which have been recommended by the various committees dealing with the several commodities.

OUTLAYS UNDER THE THIRD PLAN

17. Outlays on agriculture appear in the Plan under several heads. Thus, besides the provision of Rs. 625 crores under agriculture and allied heads and Rs. 400 crores for community development and cooperation, the plan provides for an outlay of Rs. 650

crores on large and medium irrigation projects and for an investment of about Rs. 240 crores for the production of fertilisers. About a third of the expenditure under the community development programme bears directly on agricultural production. The allocation for agriculture includes Rs. 25 crores for the provision of storage facilities. The programme for increasing storage from the present level of 2 million tons to 5 milion tons has been already taken in hand. In addition, account may be taken of the investment on agriculture in the private sector which is estimated at Rs. 800 crores. In connection with agricultural programmes account should also be taken of the programmes suggested by the Working Group on Cooperation for securing finance from cooperative agencies to the extent of Rs. 400 crores of short-term credit, and also Rs. 160 crores of medium term credit and Rs. 115 crores of long term credit, being outstanding at the end of the plan period.

The provision for agricultural programmes is necessarily subject to review in the light of the targets and requirements assessed by State Governments on the basis of the area agricultural programmes which will be prepared in the course of the next few months. Sufficient resources should be provided for the essential agricultural programmes so as to draw out the physical potential that exists in each area to the utmost extent feasible. During the course of the plan, in making year to year allocations, supplementary resources can be provided, if necessary, for specific programmes with a view to achieving the targets of additional production envisaged.

18. There can be little doubt that in implementing development plans relating to agriculture and rural community development, it is possible to realise larger results from the outlays incurred than has been the case in recent years. Thus, systematic surveys of the possibilities of minor irrigation would facilitate the selection of schemes in each area which are likely to yield the greatest benefits. Frequently, for lack of these surveys, minor irrigation schemes are taken up without adequate investigation of their economic and technical aspects. Secondly, there has been a tendency for overlapping financial provisions being made for similar activities under the agricultural and the community development programmes. In working out programmes for the Third Plan such overlapping has to be eliminated as far as possible. In the third place, as was pointed out when the agricultural targets for the Second Plan were fixed in November, 1956, minor irrigation programmes have increasingly tended to become programmes of small-scale irrigation works executed by Government agencies with little voluntary labour or participation by the people. It was then emphasised that it was of

the utmost importance that minor irrigation should be regarded in all Sates as essentially a community programme in which local contribution and money and labour have a leading role. These observations apply equally to programmes for soil conservation, contour bunding and dry farming.

19. Finally, in recent years different kinds of grants and subsidies have come to be introduced with the object of stimulating new activities. The general policy should be to eliminate these subsidies progressively. This involves a critical review on the part of the Central and State Governments of the exact purpose which each subsidy is intended to serve and the steps by which it may be withdrawn. There might be justification for a subsidy for a limited period in support of an innovation or an improved practice which has not yet been accepted or one which is intended to benefit the poorer sections of the community. While gradually removing the subsidies which have been introduced in recent years, care has to be taken to avoid taking up new schemes which involve subsidies and to consider in each case whether the objective in view will not be better realised by other means.

2. COMMUNITY DEVELOPMENT

20. Since its inception eight years ago, the community development programme has been introduced in over 2,000 blocks and now serves a population of about 194 million. By the end of the second plan, the programme will extend to about 3,100 blocks comprising about 400,000 villages. Of these, over 1,000 blocks will have completed more than five years and entered the second stage of the community development programme and about 2,040 blocks will still be in the first stage. In addition, in about 500 development blocks, pre-extension activities will have been taken in hand. According to the programme already approved, by October 1963, community development work will extend over the entire country. At the end of the Third Plan, about 2,100 blocks will be in their first stage, about 2,000 in the second stage and over 1,000 blocks will have completed 10 years of developmental activity. For programmes under community development and cooperation the Plan provides a total outlay of Rs. 400 crores.

21. Every community block is intended to be an area of intensive effort in which all development agencies of the Government work together as a team in cooperation with the local leadership represented in panchayats and cooperatives. The activities to be undertaken are viewed as an integral part of a programme for improving

all aspects of rural life and, above all, for establishing a sound economic base through rapid agricultural development. The movement seeks to reach every family in the village and to create conditions in which the entire community can put forth its best efforts, utilise the local man-power and other resources to the greatest advantage, and advance on the basis of mutual interest and obligation. In this way, communities achieve social cohesion and unity.

22. The fundamental purposes of the community development movement need to be more widely understood. Objective assessments made from year to year and special studies undertaken by the Programme Evaluation Organisation have thrown useful light on the gaps which admittedly remain between these goals and the progress achieved in most areas. In the scheme of national development the block organisations in community projects areas, including both extension workers and the popular institutions, bear a heavy responsibility. The directions in which the community development movement should be oriented to enable it to make its full contribution during the next few years may be considered under the following heads:—

(1) priorities,

(2) changes, if any, in the scheme of organisation in community development areas,

(3) organisation of village production plans,

(4) role of the block as a unit of planning and development,

(5) significance of democratic institutions at the village, block and district levels for community development, and

(6) community development and the under-privileged sections of the population.

PRIORITIES AND ORGANISATION

23. The basic problem in the rebuilding of the rural economy is the organisation of the agricultural efforts at the village level. In the measure in which progress is achieved in mobilising the village community for increasing production every other problem of the rural population becomes easier of solution. The growth of agricultural production is of such critical importance that the principal test for the community development movement at the present juncture must be its practical effectiveness as an agricultural extension agency. It is, therefore, incumbent on the community development organisation to take all steps necessary to eliminate its

deficiencies in this respect and to accept responsibility for achieving the targets of agricultural production on the basis of the widest possible participation by local communities.

24. At the same time, Agriculture Departments must place at the disposal of the community development organisation at the block level the supplies, trained manpower and other resources needed. Concentration on agriculture may be expressed in two ways. First, primary work of the village level worker should be in the fields of agriculture, cooperation and panchayats. Other fields are mainly the concern of village institutions, and the village level worker comes into them indirectly rather than directly.

Secondly, the priority for agriculture should take the form of increasing the financial provision for agriculture within the schematic budget of the community development block. Proposals in this direction are already under consideration. Allotments for agricultural programmes, should in no case be diverted to other heads, indeed, block organisations should be encouraged to make even larger provisions available for agriculture out of the block budget.

25. Suggestions have been sometimes made that the area entrusted to a village level worker should be reduced so that his work can become more intensive than it is at present. This subject has been considered carefully. The general conclusion reached is that, as a rule, a village level worker should be able to serve effectively 1,000 to 1,200 families.

Steps should be taken to readjust the jurisdiction of village level workers on this basis. These officials should live in the villages and among the people, taking interest and assisting in all their activities. Satisfactory results are likely to be obtained only by ensuring that village level workers and other extension personnel are able to serve continually in the same areas, getting to know the cultivators and their problems closely, becoming, as it were, members of the local communities. To make this possible village level workers and other extension personnel should remain in their areas for long periods and efforts should be made to assure to extension staffs their due emoluments and promotions without having to change their jobs or move to other areas.

26. Besides the provisions drawn from the schematic budget, the block plan includes allotments from the budgets of all development departments. The main reason for providing special funds in the schematic budget is that each block should have certain minimum

funds at its disposal for local development which can serve as a nucleus. Care is needed for avoiding financial provisions of an overlapping character under different heads and to ensure that in all cases there is community participation. These observations hold good in a number of fields, but are specially relevant to the expenditure on agriculture incurred in community development blocks.

VILLAGE PRODUCTION PLANS

27. From the beginning of the second plan much stress has been placed on the preparation of village production plans which involve all the cultivators in the village. Without a village production plan it will not be possible for the extension workers to reach all the farmers in the village or to mobilise effectively the efforts of the local community. The main elements in an agricultural production programme at the village level are:

(1) full utilisation of irrigation facilities, including maintenance of field channels in good condition by the beneficiaries, economy in the use of water and increasing the area under multiple cropping,

(2) multiplication in the village of improved seed and the supply on credit to those who are not in a position to pay in advance,

(3) supply of fertilisers,

(4) programme for composting and green manuring,

(5) adoption of improved agricultural practices, *e.g.* soil conservation, contour-bunding, dry farming, mixed farming, plant protection, etc.,

(6) programme for new minor irrigation works to be undertaken in the village, both through community participation and on an individual basis, and

(7) programme for the introduction of improved agricultural implements.

The production plan is a necessarily continuing programme, linking up block programmes with efforts in the village. Its success depends on (i) efficient organisation of supplies in time and (ii) the assistance given by way of technical advice to villagers. These are services provided by the community development organisation.

28. The village production plan will include two main groups of programmes; (1) supply of credit, fertilisers, improved seed, assistance for plant protection, minor irrigation etc; and (2) programmes such as the digging of field channels for utilising irrigation from large projects, maintenance of bunds and field channels, contour bunding, digging and maintenance of village tanks, village fuel plantations etc. which call for effort on the part of the entire community or groups of cultivators. The village production plan has to be something simple and business-like and easily understood by the villagers. It is not intended that the preparation of the village production plan should become an elaborate process in which a village level worker has himself to work out various details with each cultivator separately. Collaboration between the panchayat and the cooperative is essential at each stage in the preparation and implementation of the production plan, although the role of these institutions may not be the same everywhere. These organisations, assisted and guided by village level workers and other extension personnel, have to bear the primary responsibility for drawing up the village production plan.

29. The panchayat is in the best position to visualise the village production plan as a whole and, in particular, to arrange for the execution of programmes requiring effort on the part of the entire village community or of groups of beneficiaries. On the other hand, the village cooperative arranges for the specific assistance required by individual cultivators by way of credit and supplies. As the membership of the village cooperative becomes more broad-based and comes to include all the cultivators in the village, its responsibilities and those of the panchayat for the village production plan will become more closely linked. Within the general village plan framed by the panchayat in collaboration with the cooperative, there are the plans of individual cultivators which are assisted through the cooperative. Thus, the preparation of the agricultural plans of individual families means, in essence, the more effective organisation of the work of the primary cooperative, so that its assistance becomes available to all the cultivators in the village. In the circumstances, there should ordinarily be no need to draw up separate production plans, as such, for individual cultivators. These will emerge from the very process of implementing village plans which has been described above. Since the progress made so far in preparing and implementing village production plans has not been adequate. State Governments should arrange for development staff in all blocks to gain experience in a small number of villages in the course of this year with a view to more rapid development under the Third Plan.

BLOCK AS A UNIT OF PLANNING AND DEVELOPMENT

30. The question of treating the block as a unit of planning and development has been under consideration for some time. In certain sectors of development, block plans have an important role in the preparation of the State Five Year Plan. The block plan has also an important role in the preparation of the Annual Plan of the State and even more in its execution. With the progress in the establishment of democratic institutions at the block and village level, the need for drawing up the State Plan from below and specially for implementing on the basis of the block as a unit has become specially urgent.

In relation to the programmes in the following fields proposals for the State Five Year Plans are proposed to be formulated on the basis of block and district plans:

(1) agriculture, including minor irrigation, soil conservation, village forests, animal husbandry, dairying, etc.,

(2) development of cooperatives,

(3) village industries,

(4) elementary education, specially provision of school buildings by local communities,

(5) rural water supply and programme of minimum rural amenities, including construction of approach roads linking each village to the nearest road or rail-head, and

(6) works programmes for the fuller utilisation of manpower resources in rural areas.

31. The block plan will include all social and economic activities undertaken within the block which call for (a) planning initiated locally at the block and village levels and (b) coordination with the plans of various departments which are implemented within the block.

The following are the principal types of activities which fall within the block plans:

(1) items in the schematic budget of the community development block according to the stage reached,

(2) items included in the budgets of different departments which are executed through the block organisation,

(3) works undertaken by the local community or by beneficiaries in accordance with the obligations laid down by law,

(4) activities undertaken in the block by the block organisation with a view to securing larger contributions from local communities in respect of development schemes in different fields, and

(5) works involving unskilled and semi-skilled labour undertaken in the block.

For block organisations to be able to carry out the works projects mentioned under (1), (2) and (5) above, it is necessary to give greater attention to the organisation of labour cooperatives which can execute the projects, provide tools to workers and take responsibility for the necessary supervision and the financial arrangements. Another important step will be to assist village communities to build up assets for themselves which will provide a recurring income.

DEMOCRATIC INSTITUTIONS

32. A number of States have already enacted legislation for establising democratic institutions at the district and block levels, in addition to panchayats which function at the village level. Other States are likely to enact similar legislation before the commencement of the Third Plan. This scheme of development through democratic bodies or "Panchayati Raj" is a most significant step forward and represents the fruition of a general approach which was urged both in the First and the Second Plan. In the First Plan, the role of local bodies in development programmes was considered and the suggestion was made that the general direction of policy should be to assist them in assuming responsibility for as large a portion of administration and social services within their areas as might be possible. The Second Plan emphasised the need for creating a well-organised democratic structure of administration in which village panchayats would be closely linked with popular organisations at a higher level. Proposals for setting up democratic institutions were worked out by the Study Team on Community Projects and the National Extension Service set up by the Committee on Plan Projects. The National Development Council examined these proposals and agreed that the foundation of any democratic structure had to be democracy in the village. The two institutions which made effective village democracy possible were the village panchayat and the village cooperative. The first step, in any area, therefore, should be to establish the network of institutions needed at the village level. Democratic institutions at the district, block and village level should be viewed as parts of one connected structure of administration. Against the background of these considerations, the National Development Council affirmed the objective of introducing the democratic structure of administration within the district

above the village level and approved of the general principle of giving responsibility for development to representatives of the people within the village, leaving the precise manner in which the principle was to be applied to be worked out by each State according to its conditions.

33. In accordance with the steps now being taken by different States, subject to guidance and supervision by Government, the ultimate responsibility for the implementation of development programmes in the block will devolve progressively on the block panchayat samiti working with panchayats at the village level and with the zila parishad at the district level. While giving effect to this policy, it is necessary, however, to mention four essential conditions for the success of the scheme of development through democratic institutions at the district and block level:—

(1) A major test to be applied is the manner in which each panchayat samiti and panchayat makes the effort to mobilise local manpower and other resources and seeks the cooperation of the people of the area.

(2) The responsibility of the district administration at all levels for making supplies and services available at the right time according to the accepted programmes and for preventing loss due to waste or mis-application of funds should be emphasised and nothing should be done to blur this chain of responsibility.

(3) Panchayat samitis and panchayats should place their main emphasis on increasing agricultural production.

(4) Panchayat samitis and panchayats should give special attention to measures for raising the level of living of the less privileged sections to the level of other sections in the community.

The above aspects should be emphasised in the training programmes which are arranged by State Governments for members of panchayats, cooperatives and panchayat samitis. In the early stages the administrative procedures should provide for the necessary supervision and guidance to ensure that the overall priorities are observed in the development programmes which are implemented at the district, block and village levels.

COMMUNITY DEVELOPMENT AND THE UNDER-PRIVILEGED

34. Early evaluation reports on the community development programme drew attention to the fact that the programme did not provide adequately for the less-privileged sections of the village community. Recent studies report a degree of improvement in this

respect. The emphasis in the community development movement and the uses to which its resources are to be put should be more and more in the direction of assisting the less-privileged sections. The block organisations can also render useful service by assisting the implementation of the land reform legislation which has been enacted. Other measures which the block organisation can take to the advantage of the poorer sections would be to increase subsidiary employment in the villages, raise the productivity of village industries and of village artisans, organise labour cooperatives, and promote the fullest possible utilisation of manpower resources in the area.

35. In the efforts which have been made over the past three years to secure greater coordination between the community development and Gramdan movements their common objectives have been emphasised. These include the acceptance by the village community of responsibility for the welfare, employment and livelihood of all its members. This is of special significance from the point of view of the weaker sections in the village.

3. CO-OPERATION

36. In November 1958 in its Resolution on Cooperative Policy the National Development Council agreed that cooperatives should be organised on the basis of the village community as the primary unit and that responsibility and initiative for social and economic development at the village level should be placed fully on the village cooperative and the village panchayat. In the light of this general approach, States were requested to review their programme of cooperative development and prepare fresh programmes for the two remaining years of the second plan. The Council also indicated the broad objective that the cooperative movement should be developed so as to bring within its fold all rural families by the end of the third plan.

37. Programmes for the Third Plan are being worked out in terms of the policy set out in the National Development Council's Resolution. Its main features are the following:—

(1) The cooperative and the panchayat are the primary agencies for carrying out the community development programme which aims at the improvement of all aspects of rural life through the efforts of the people.

(2) The village agricultural plan is the foundation of the programme for cooperative development and should receive the highest priority.

(3) The primary functions of the village cooperative are the provision of short and medium term credit, supply of agricultural and other production requirements and the marketing of agricultural produce. In addition to these functions, the cooperative should help to formulate and implement the agricultural production plan of the village and undertake such educative, advisory and welfare work as the members might be willing to take up. For specific functions, separate cooperative societies may be organised for groups of villages *e.g.*, for industrial workers. They may also be organised within a village on behalf of those who benefit from a particular activity *e.g.*, cooperative farming, tubewells, soil conservation etc.

(4) Cooperative should be organised on the basis of the village community as the primary unit. Where villages are too small, with the consent of all the communities concerned, a number of them covering a population of about 1,000 should be grouped together for the purpose of forming a village cooperative society. There should be flexibility in determining the size of the population to be served by a village society, but care should be taken to ensure the essential characteristics of a cooperative society, namely, voluntary basis, close contact, social cohesion, and mutual obligation.

(5) Where there is a village production programme, the grant of credit should be linked closely with programmes for increasing agricultural production. Every cultivator participating in the production plan of the village should be able to secure the necessary credit for obtaining supplies of fertilizer, improved seed etc. and for meeting the current expenses of cultivation to the extent necessary.

(6) Credit should be linked with marketing. Accordingly village societies should be members of marketing societies and should act as their agents for the sale of surplus agricultural produce.

(7) For the development of cooperation as a peoples' movement, there should be comprehensive programmes for training and education at the village, block and district levels and conditions should be created in which large number of non-official workers can effectively participate in building up the movement. Supervising unions

should be organised at the block or equivalent level for the purpose of supervision, education, organisation, and promotion. These supervising unions should be federated into district unions and a union at the State level.

(8) An essential objective of the cooperative movement is the inculcation of the habit of thrift and saving. In each area, according to the programme worked out by the cooperatives, the effort should be to meet all the requirements of credit needs of their members.

38. Since the decisions outlined above were reached, programmes for cooperative development for the third plan have been considered by a Working Group and also by a committee of the National Cooperative Development Board. On the recommendation of the Conference of State Ministers for Cooperation, held in July 1959, a Committee on Cooperative Credit was appointed to consider different aspects of the questions of expanding agricultural credit, including standards for credit limits, loan policies and practices of cooperative credit institutions, measures necessary for increasing the borrowing powers of primary credit societies, and the desirability of share capital participation by the State in the village societies. The report of the Committee has only recently become available. This section is therefore, limited to a brief statement of the progress made and an indication of some of the targets which have been tentatively suggested for the third plan. Programmes of cooperative development will be worked out in each area as part of district and block plans and a fuller picture will be available when the plans of states are considered. On the subject of cooperative farming also, the report of the Working Group which has been recently received, is under consideration and the targets and other related questions are under examination.

COOPERATIVE CREDIT

39. The total amount of credit advanced by cooperatives increased from Rs. 23 crores in 1950-51 to Rs. 49 crores in 1955-56 and Rs. 125 crores in 1958-59. It is expected that by 1960-61 the level of about Rs. 190 crores may be reached. During the period 1950-51 to 1958-59, the number of primary agricultural societies has increased from 105,000 to 183,000 and their membership has gone up from 4·4 million to about 12 million. By the end of the second plan, it is estimated that there will be about 200,000 primary agricultural societies with a total membership of about 17 million, serving about 33 per cent of the agricultural population and about 25 per cent of the total rural population. One aspect of the development during the first

two plans, to which attention may be drawn, is that as between States, progress has not been even and that in States comprised within the Eastern Zone in particular, the cooperative movement is still weak. Another aspect which should be mentioned is that in a number of States, the overdues in the primary societies remain at a high level.

40. In its preliminary proposals, which are intended to be a basis for further consideration, the Working Group on Cooperative Development has envisaged the following targets by the end of the third plan.

1	number of primary village societies (service cooperatives).	2.5 lakhs
2	membership	40 million
3	(a) coverage of rural population.	55%
	(b) coverage of agri. population	74%
4	loans to be issued through cooperatives :	
	(a) short-term	Rs. 400 crores
	(b) medium-term (loans outstanding)	Rs. 160 ”
	(c) long-term (loans outstanding)	Rs. 115 ”
5	average membership	160
6	average loan given per member (short & medium term)	Rs. 120
7	average share capital per society	Rs. 4,800
8	statutory and other reserves per society	Rs. 1,600
9	total deposits to be held by primary village societies	Rs. 30 crores

41. These targets should be regarded at this stage as illustrative as each area is expected to work out its own development programme with due regard to the objective of bringing all rural families within the cooperative movement by the end of the third plan. It is recognised that in some areas this goal may be difficult to reach until a fair proportion of the existing societies has been revitalised and the general economy of these areas strengthened through various programmes of development. After consultations between the Government of India, the Reserve Bank of India and the State Governments, it will be possible to determine more precisely the targets for short-term, medium-term and long-term credit. Meanwhile, the magnitudes suggested by the Working Group may assist district and block authorities in preparing their local agricultural plans.

Cooperative Marketing

42. It is expected that by the end of the second plan nearly 1,900 cooperative marketing societies will have been established. The

volume of business handled by them, however, is still relatively small. The main tasks in the third plan will be firstly, to place these marketing societies on a sound basis, link them effectively with village societies and enlarge their total business and, secondly, to set up marketing societies in areas not provided with cooperative marketing facilities during the second plan. It is estimated that about 400 additional new marketing societies may be required. In the development of cooperative marketing, it is not possible to fix specific targets in advance. The more important consideration is that conditions should be created in which village societies can serve effectively as channels for the disposal of surplus produce through the marketing societies in their areas. In the scheme of State trading for foodgrains which was announced in April 1959, the objective was that the entire marketable surplus of foodgrains should be purchased by cooperatives. It is mainly through the quality of the service they provide and the credit facilities they ensure that marketing cooperatives are likely to make the greatest progress in the next few years. Efforts have, therefore, to be concentrated on measures to strengthen the marketing organisation through the linking of credit with marketing, training of personnel, and the provision of storage and other facilities.

COOPERATIVE PROCESSING UNITS

43. The second plan was a period of considerable effort in cooperative processing, specially in the sugar industry. Up to 1958 as many as 38 cooperative sugar factories were licensed. A number of these are still confronted with difficult problems of organisation, management and finance. It is considered that in the third plan, greater attention should be given to the establishment of processing units which entail relatively small capital investments than to those involving large outlays. The Working Group on Cooperative Development has suggested as a basis for further consideration the setting up of 50 cotton gins, 50 rice mills, 800 rice hullers, 20 jute baling plants, 20 oil crushing units, 50 decorticators, 130 fruit canning units and 5 flour mills. It is tentatively proposed to set up 20 cooperative sugar factories during the third plan. This will need further consideration from the point of view of organisation and finance. In the case of some processing industries the question of coordination with programmes of village industries has also to be considered. The tentative programme for dairy development includes 75 milk processing units and 30 rural creameries. As far as possible, these will be organised on a cooperative basis. Programmes for organising fishermen's cooperatives are also being worked out.

CONSUMERS' COOPERATIVES

44. In the distribution of foodgrains and a number of other commodities consumer cooperative societies can play a large and increasing role. Although the general idea of developing consumer cooperatives has been frequently supported and some progress has been made, precise programmes have not been so far worked out. The Working Group on Cooperation has envisaged assistance for 4,000 primary stores and 100 wholesale stores, the new primary stores being established, to begin with, in the larger towns and cities and in industrial centres. At the village level the service cooperatives can undertake distribution along with their other functions.

COOPERATIVE TRAINING

45. The Working Group on Cooperative Development has drawn up preliminary proposals for training during the third plan of the personnel of Cooperative Departments as well as of non-official workers at the block and village level. Specific proposals on the subject are to be formulated in consultation with State Governments.

COOPERATIVE FARMING

46. The role of cooperative farming in the reconstruction of the rural economy was stressed both in the First and in the Second Plan. The main task outlined in the Second Plan was that such essential steps were to be taken as would provide sound foundations for the development of cooperative farming, so that over a period of 10 years or so a substantial proportion of the agricultural lands were cultivated on cooperative lines. With the growth of population and the need to secure rapid increase in agricultural production, it is essential to intensify efforts to develop cooperative farming and realise the goal indicated in the Second Plan. In the main, cooperation in farming has to grow out of the success of the general agricultural effort through the community development movement and the progress of cooperation in credit, marketing, distribution and processing. The contribution of cooperative farming to rural progress will be significant only if it develops as a voluntary mass movement under genuine local leadership and as a logical growth of community development and cooperation at the village level. The Resolution of the National Development Council of November 1958 has, thus, a significance extending beyond the question of the size of the primary unit for the organisation of cooperative credit. Credit itself is only the beginning of cooperation. From credit, cooperation has to extend to a number of other activities in the village, including cooperative farming until it encompasses all aspects of rural life. Given the approach of community development and the acceptance by the

village community of its responsibility for the welfare of all its members, the main problems of cooperative farming are organisational, technical and educational. These call for an intensive effort to solve the internal management problems of cooperative farming societies, on which much practical experience is now available, adequate assistance from cooperative financing agencies, and guidance in the initial stages from the Agriculture and Cooperative Departments and other agencies.

47. The report of the Working Group on Cooperative Farming, to which reference has been made earlier, is at present under consideration. This report is based on a survey of a number of existing cooperative farming societies and makes recommendations regarding the organisation of cooperative farming societies, the pattern of assistance to be provided and the machinery for carrying out the programme. It also suggests a scheme of pilot projects which is intended to lead the way towards a more rapid expansion of cooperative farming in the ordinary course. At this stage, two broad considerations deserve to be emphasised. Firstly, while it is true that cooperative farming societies have special problems and will need a measure of support and advice, to encourage undue dependence on their part on outside help or to regard them otherwise than as an aspect of the normal pattern of rural development, will be to inhibit the growth of the movement. In the second place, the progress of cooperative farming will largely depend on successful local experience gained in different parts of the country under conditions which do not differ widely from those under which the vast body of agriculturists live and work. Keeping these aspects and the proposals of the Working Group and of State Governments in view, detailed proposals for the development of cooperative farming will be set out in the final report on the Plan.

4. ANIMAL HUSBANDRY, DAIRYING AND FISHERIES

48. Programmes for the development of animal husbandry, dairying and fisheries during the third plan have been drawn up on broad lines, with a view to their serving as a basis for the preparation of more detailed schemes by the Central and State Governments. The tentative allocation for these programmes comprises Rs. 50 crores for animal husbandry, Rs. 40 crores for dairying and Rs. 35 crores for fisheries as against the anticipated outlays in the Second Plan of Rs. 26,17 and 9 crores respectively.

ANIMAL HUSBANDRY

49. Efficient animal husbandry has to be pursued as an integral part of a sound system of agriculture. Programmes relating to the improvement of livestock include schemes for better breeding, better nutrition and control of diseases. Even under favourable conditions, the full benefits of these schemes can be realised only over a considerable period, but there are special difficulties in India due to the existence of large numbers of old and useless cattle.

50. The main programme for better breeding is that undertaken in the key village areas where intensive cattle development work is taken up. To prevent the multiplication of poor and inefficient animals, mass castration of scrub bulls is included in the programme. To upgrade the local stock, natural service through pedigree bulls is provided. The establishment of artificial insemination centres also forms an important part of the activities of key village areas. Other activities included in this programme are the rearing of calves and the provision of larger veterinary facilities. In the first plan, 146 key village blocks, each serving about 2,000 cattle and buffaloes, were established. In the second plan, each unit comprised about 5,000 cattle and buffaloes, and in all 150 key village blocks are expected to be set up. In the third plan, 50 of the units already established are to be expanded so as to cater for a population of about 10,000 cattle each and, in addition, 35 new key village blocks are proposed to be set up. By the end of the second plan, 371 artificial insemination centres will have been set up. It is also proposed to establish 50 central stations for the collection, preservation and utilisation of semen.

51. The breeding policy drawn up by the Indian Council of Agricultural Research and accepted by the Central and State Governments was set out in the Second Plan. In the case of well-defined draught breeds, the object is to increase their milk-yielding capacity as much as possible without materially impairing their quality for work. In the case of other animals, the effort is to develop their milking capacity to the maximum by grading them up with well-defined breeds. The policy thus is to evolve and develop "dual purpose" breeds which will provide both good bullocks for cultivation as well as milch animals.

52. The difficulty of providing balanced and adequate feeding for livestock under existing conditions has been always recognised, but few practical steps could be initiated during the first two plans. During the third plan it is proposed to set up 30 demonstration farms,

nearly 1,200 village demonstration units and 5 research centres for animal nutrition.

53. It has been felt for a considerable period that in each area there should be programmes for introducing suitable grazing practices and for improving pastures. A survey of grasslands has been completed by the Indian Council of Agricultural Research and small beginnings in the collection of grass seeds have been made in some States. For the Third Plan, in consultation with the States, it is proposed to work out schemes for the improvement of pastures in hill areas and lands belonging to village communities and for the popularisation of mixed farming.

54. By the end of the second plan, about 4000 veterinary hospitals and dispensaries are likely to be established. In the third plan, it is expected that all development blocks will have at least one veterinary hospital or dispensary and, in addition, there will be provision for mobile dispensaries in rural areas as well as for veterinary hospitals for urban areas.

55. The rinderpest eradication programme which was first taken up on a pilot basis in 1954 has been greatly expanded. By the end of the second plan, about 89 million cattle and buffaloes are expected to be protected, leaving a balance of about 37 million to be vaccinated during the third plan. Work on other livestock diseases will also be developed during the third plan.

SHEEP AND WOOL DEVELOPMENT

56. Next to cattle, sheep are the most important livestock in the country. The total production of wool at present is about 72 million lbs. per year, mostly of the carpet type. Nearly 50 per cent of this wool is exported, at the same time the country imports about 23 million lbs. of apparel wool. There is need both for increasing the yield and improving the quality of wool. By the end of second plan 4 sheep breeding farms and 330 extension centres will have been established. In these farms superior rams are being produced by crossbreeding with exotic breeds and by selective breeding of indigenous breeds. The superior rams are supplied to shepherds with a view to upgrading the local stock. In the extension centres, groups of villages with a population of 2,000 to 3,000 sheep are selected and the flock owners are provided with superior rams, indigenous or imported, so that these units may become centres of production of superior rams in large numbers. At these centres improved methods of shearing, grading and other improved practices are demonstrated.

During the third plan, 6 new sheep breeding farms and 4,000 new extension centres are proposed to be established, the sheep population covered by each centre varying from 10,000 to 15,000.

57. Grading of wool at the time of shearing of sheep is essential for improvements in marketing. At present good wools are mixed with the poorer qualities. It is, therefore, envisaged tentatively that about 300 wool grading and marketing centres to be run by cooperatives of producers should be set up during the third plan. Facilities for shearing, grading, baling and storing of wool will be provided at these centres. It is expected that by the end of the third plan wool production will be raised to about 90 million lbs.

POULTRY DEVELOPMENT

58. Poultry development provides a useful subsidiary occupation to a large section of the rural population. According to programmes for the second plan, by 1960-61, 5 regional poultry farms and 300 poultry extension-*cum*-development centres will have been established. In the third plan, it is proposed to expand two of the regional poultry farms and to establish two duck breeding farms. It is also proposed to expand 100 of the poultry extension centres into district farms, establish 10 collection and marketing units and 60 intensive poultry development blocks. It is reckoned that as a result of the measures in view it will be possible to increase the average egg production per hen from 60 to 70 per annum and to upgrade about a fourth of the indigenous poultry stock.

DAIRYING AND MILK SUPPLY

59. The need for proper coordination between animal husbandary and dairying programmes is generally recognised. The evolution of "dual purpose" breeds could be effectively helped by the organisation of a dairy industry based on a system of rural milk production linked with urban marketing. The production and collection of milk will be organised through cooperatives in the rural areas; processing and distribution will also be organised through cooperatives wherever possible. Such a system will replace the present unsatisfactory condition of the milk trade through scientific processing, hygienic handling, efficient marketing and better utilization of milk and milk products. Integration between animal husbandry and milk supply schemes will strengthen the agricultural economy as well as ensure supply of pure milk to urban consumers.

60. The Second Plan included provision for equipping 36 cities with modern milk treatment plants with capacity for expansion in

future. These included the plants set up at Calcutta, Bombay, Delhi, Madras and Ahmedabad. The milk to be handled in these plants has to be procured from cooperative societies of primary producers which are organised in the rural areas serving these cities. Projects like rural creameries for the purpose of using surplus milk in areas far away from urban consuming centres have also been taken up. Three rural creameries and two milk product factories are expected to be established by the end of the second plan.

61. During the third plan period, it is proposed to take up about 75 milk supply schemes for cities with a population exceeding 100,000 and new industrial townships. It is also proposed to set up about 30 rural creameries and 8 milk products factories. A scheme for setting up a plant for the manufacture of dairy equipment, including items not hitherto manufactured in the country, is under examination. The establishment of 4 cattle feed compounding factories is also contemplated. In selected milk producing areas, with a view to increasing the production of milk, arrangements are to be made for technical advice on breeding, feeding and disease control.

FISHERIES

62. The production of fish, which was estimated at 1·0 million metric tons at the end of the first plan, is expected to increase to 1·4 million metric tons by 1960-61 and to 1·8 million metric tons by 1965-66. Nearly two-thirds of the increased production during the third plan is likely to come from marine fisheries.

63. The programme for the development of fisheries falls into two parts, marine fisheries and inland fisheries. The mechanisation of fishing craft and work on the development of designs for mechanised fishing craft suitable for the different sections of the coast were taken up in the first plan. By the end of the first plan about 650 boats had been mechanised, mostly in Bombay. Mechanisation of fishing craft has made appreciable progress in the States of Bombay, Kerala, Mysore and Madras and programmes for mechanisation have also been taken in hand in Andhra Pradesh and Orissa. About 850 boats have been mechanised since the beginning of the second plan. Training in the use and maintenance of mechanised boats is being provided at 9 centres in different States. The Deep Sea Fishing Station at Bombay has been conducting exploratory surveys for some time to map out areas suitable for commercial exploitation. The surveys have made it possible for exploitation to be taken up on a commercial scale.

64. During the third plan, the programme of mechanisation of fishing craft is being expanded and it is proposed to mechanise about 4000 boats. Special emphasis is to be given to the exploration of new fishing grounds and to the exploitation of marine resources through cooperatives as well as through private fishing companies. Development of fishing harbours and berthing facilities will also be taken up. The provision of refrigerated rail cars and insulated road trucks for the transport of fish over long distances has been included in the programme.

65. As regards inland fisheries, about 300,000 acres of inland waters have been surveyed, about 13,000 acres have been reclaimed and over 600,000 acres have been stocked till 1958-59. A training course in inland fisheries and management has also been organised. The programme for the third plan will include survey of about 300,000 acres, reclamation of 6,500 acres and stocking of about 200,000 acres in addition to the areas already stocked during the previous plans.

5. FORESTS AND SOIL CONSERVATION

Forests

66. The object of forest policy is to secure the long-range development of forest resources and also to increase output through better techniques for timber extraction, the development of forest communications and the increased use of preservative and seasoning processes. Among the programmes included in the second plan were new plantations, survey and demarcation of forest areas, rehabilitation of degraded forests, construction of roads and improvement of existing communications. Schemes for the adoption of improved logging methods and seasoning plants also formed part of the Plan.

67. The plantation of 50,000 acres with suitable woods for the match industry and plantation of about 200,000 acres with industrial timbers was proposed in the Second Plan and it is expected that these targets will be almost fulfilled. Due to overfelling and mal-treatment of private forests in the past, large areas are in a degraded condition and need rehabilitation. About 400,000 acres of such forests have been taken up for rehabilitation during the second plan. Surveys and demarcation of 21,000 square miles have also been in progress. Programmes for the planting of trees along railway tracks, canals and roads are being implemented. Over 5,000 miles of forest roads will have been constructed by the end of the second plan. To avoid wastage resulting from the traditional methods, improved methods

of logging are being introduced in Punjab, Himachal Pradesh and Jammu and Kashmir.

68. With the object of meeting part of the shortage of firewood it is proposed to create village forests comprising quick growing species during the third plan over an area of about 2 million acres. This programme will be taken up in village common lands with community participation. The State will provide technical advice and also supply plants and seedlings. By supplying alternative fuel to the villagers, the programme will help conserve cowdung for use as manure.

69. Other development programmes envisaged for the third plan are the raising of sal and coniferous plantations on 50,000 acres in U.P., Punjab, Jammu and Kashmir, Himachal Pradesh, and West Bengal, teak plantations on 200,000 acres in Madhya Pradesh, Assam, Kerala, Mysore, Andhra Pradesh and Bihar and miscellaneous plantations, especially fast growing species on another 450,000 acres in Punjab, U.P., Rajasthan, Madras, Kerala, and some other States. Programmes for raising plantations along canals, roads and rail-tracks will be continued. About a million acres of degraded forests will be rehabilitated. In addition, consolidation work will be undertaken over 33,000 square miles of forest area.

70. A target of construction of 15,000 miles of forest roads is proposed for the third plan. These roads will be integrated with the general road programmes in the States.

71. It is proposed that programmes for improved logging methods should receive greater attention in the third plan. It may be mentioned that the Forest Research Institute has designed a number of improved implements which have been tested and proved to be useful. Some workers have already been trained in the use of these improved tools and equipment. Programmes for the local manufacture of these tools for their more widespread use are to be formulated.

72. India's forests include a variety of secondary timbers which can supplement industrial timbers if properly seasoned and rendered durable by preservative treatment. The Plan, therefore, envisages the establishment of 6 seasoning and preservation plants and a number of mobile units with a view to upgrading these secondary timbers and utilising them to the maximum advantage.

73. The demand for wood—round-wood, bamboo, etc., for use in construction and industry and firewood for domestic use—is steadily increasing. According to a recent timber trends study, supplies of

all kinds of timber are likely to fall appreciably short of the demand over the next 15 years, unless appropriate remedial measures are adopted. The beneficial effects of the forest development schemes undertaken during the first and second plans will be realised after several years. Improved logging methods, establishment of plants to utilise woodwaste and the use of substitute materials in place of solid wood wherever possible are among the measures to be adopted for improving in the immediate future the availability of round-wood for essential needs. For the supply of fuelwood the programmes of village forests and extension forestry need to be greatly expanded and accelerated. Special attention has also to be given to the development of bamboo.

74. In working out the detailed programmes for forest development over the third, fourth and fifth five-year plans, the economic aspect will be specially important. A sustained increase in production will have to be realised from year to year through intensive forest development schemes, including the planning of quick-growing species, selection of high-yield areas, introduction of improved techniques, development of forest communications and, more generally, the linking of forest development with specific schemes of industrial development to be undertaken over the next 10 or 15 years.

SOIL CONSERVATION

75. *Agricultural Lands.*—However much irrigation may spread in India, there will be left a large area amounting to 140 to 150 million acres in which increased yields have to be obtained mainly through contour bunding, soil conservation and dry farming techniques. It was stressed in the Second Plan that soil conservation programmes should be taken up as people's programmes and should be executed with a large measure of participation from agriculturists. Forty projects for demonstration of dry farming techniques have been recently begun. It is expected that about 2 million acres of agricultural lands will have benefited from soil conservation measures undertaken during the second plan. In the third plan it is proposed to undertake soil conservation with contour-bunding over an area of 13 million acres and to extend dry farming practices over an area of 40 million acres. These are provisional targets for which detailed programmes are to be drawn up by States as part of their plans. The programme for demonstrations will also be expanded.

76. *River Valleys.*—Afforestation of catchment areas of rivers and allied measures of land-use is essential for:—

(a) prolonging the life of storage reservoirs which are built for irrigation, power, flood control and other purposes and on which large expenditures are being incurred,

(b) effective functioning of minor irrigation tanks,

(c) minimizing floods, and

(d) avoidance of erosion of lands.

The problem of afforestation is of special urgency in respect of the Bhakra-Nangal, D.V.C., Hirakud and other major river valley projects. During second plan, it was proposed to take up soil conservation work, including afforestation over an area of 300,000 acres in the catchment areas of large river-valley projects. It is expected that by the end of the second plan this programme will have been completed over an area of about 200,000 acres. During the third plan it is proposed to take up soil conservation measures over an area of 600,000 acres. The programme for the raising of fringe plantations on river and canal banks as a measure of protection of the banks from erosion is proposed to be enlarged. Plants and seedlings will be supplied by the State as also technical advice while village communities will raise the plantations and look after them.

77. *Desert Lands.*—Continuous over-grazing of grasslands, indiscriminate cutting of trees and improper land use are the main factors which have led to desert formation in Rajasthan, creating problems of wind erosion, low fertility of soil and low levels of agricultural production. Problems similar to those of the Rajasthan desert exist in Kutch, in parts of Uttar Pradesh and Punjab and along the coasts. Recent experimental work has shown that by proper management and care, even under arid conditions, grasslands are rehabilitated quickly. Improvement and maintenance of grasslands is, therefore, an effective way of combating erosion and supplying the nutritional requirements of grazing stock. In order to demonstrate proper methods of management of grasslands, including rotational grazing, a technical programme of grassland demonstration and improvement has been taken up in Rajasthan. A brief reference may be made here to the Desert Afforestation Research Station at Jodhpur, which was set up in 1952 for conducting research on afforestation of different types of soil in the arid areas and on the silviculture of various indigenous as well as exotic species of desert plants. Seeds and seedlings raised on the nursery attached to the research station are distributed for raising shelter belts. During the third plan, it is proposed to take up afforestation and pasture development programmes over an area of about 200,000 acres.

78. *Ravine lands.*—Lands situated along rivers such as the Yamuna and the Chambal and their distributaries are being eroded steadily and are going out of cultivation. It is necessary to reclaim such lands by afforestation, terracing and other soil conservation

measures in the watersheds of these rivers. A scheme for the survey of about 150 square miles of ravine lands and for the reclamation of about 50 square miles of surveyed area in Uttar Pradesh is at present under consideration.

79. *Soil conservation legislation.*—For effective execution of contour-bunding, soil conservation and other land improvement measures, the introduction of legislation, where it does not already exist, empowering the State Government to frame schemes of contour bunding for the basin of a river or a stream or for a group of villages and to notify them for objections has been recommended. After receipt of objections, a scheme may, where necessary, be modified and taken up for execution. The cost of works to be undertaken in Government lands will be borne by the State. Works to be undertaken in individual holdings may be executed by the beneficiaries themselves under the supervision of departmental technical staff. If a work is not carried out by the beneficiaries concerned it may be carried out by the Government or, on its behalf, by the panchayat samiti in the block, and the cost recovered from them. Legislation on these lines already exists in some States, and it is expected that other States will also undertake similar legislation.

CHAPTER IX

IRRIGATION AND POWER

Irrigation and power have been among the most significant fields of development since the beginning of the First Plan. Expansion of irrigation, from large as well as small projects, is an essential condition for diversifying agriculture and increasing crop yields. The development of power is a pre-requisite for carrying out large industrial programmes. River valley projects like the D.V.C., Bhakra-Nangal, Hirakud, Chambal, Tungabhadra and Nagarjunasagar, which provide both irrigation and power, have along with other programmes of development a leading role in establishing new levels of economic and social well-being in the regions served by them. Thus, large-scale development of irrigation and power helps to re-build the agricultural economy and to pave the way for the rapid industrialisation of the country.

IRRIGATION

2. As yet only a fraction of the available river water resources in the country has been harnessed. These resources were computed in 1950 to be 1356 million acre feet, of which it is estimated that because of physiographical conditions, only about 450 million acre feet can be used for irrigation. Upto 1951 about 76 million acre feet, *i.e.* about 17 per cent of the useable flow had been utilised. By the end of the Second Five Year Plan it is estimated that 119 million acre feet, representing about 26 per cent of the useable flow will be utilised. An additional 41 million acre feet is likely to be used in the Third Five Year Plan, bringing the proportion to about 35-36 per cent.

3. At the beginning of the First Plan, the area irrigated from all sources was 51.5 million acres, of which 22 million acres were irrigated from large and medium projects. It has been estimated that by end of the Fifth Five Year Plan (1975-76), it might be possible to bring about 85 to 90 million acres under irrigation from large and medium projects including multipurpose projects. In formulating proposals for the Third Five Year Plan, this long range goal is being kept in view.

FIRST AND SECOND PLAN SCHEMES

4. The estimated cost of major and medium* irrigation schemes included in the First and Second Plans is of the order of Rs. 1400 crores and on full development these are expected to irrigate about 38 million acres. By the end of the First Five Year Plan an expenditure of Rs. 380 crores had been incurred on these schemes and a further investment of Rs. 390 crores will have been made on them by the end of the Second Plan. Expenditure remaining to be incurred on these schemes is at present estimated at about Rs. 620 crores. Of this amount Rs. 160 crores pertain to schemes on which expenditure upto the end of the Second Plan would be less than 5 per cent of their estimated cost. These may be regarded as being virtually new schemes for the Third Plan. Some of these schemes such as the Rajasthan Canal, Gandak, Ukai, Narmada (Broach), etc., will continue beyond the Third Plan.

5. The irrigation benefits accruing from the First and Second Plan schemes at the end of the First Plan and during the Second Plan are given in the table below:—

Table 1: Benefits from irrigation schemes

	million acres		
end of year	potential ** at channel outlets for gross irrigation.	utilisation gross	net
1955-56	6.5	3.3	2.9
1956-57	7.3	4.1	3.4
1957-58	8.1	5.7	4.9
1958-59	9.6	6.4	5.9
1959-60 (estimated)	11.7	8.6	7.4
1960-61 (anticipated)	14.0	10.5	9.0

PROGRAMME FOR THE THE THIRD PLAN

6. It is necessary to secure the maximum benefits in the shortest time from the large investments that are being made on irrigation projects. It is also important to ensure that the benefits which accrue from these projects are not vitiated by any deterioration of land due to waterlogging and inadequate drainage or other causes. Due emphasis has, therefore, to be given to the following categories of schemes in the Third Five Year Plan:—

(1) completion of continuing schemes of the Second Plan, right up to the cultivators' fields, *i.e.*, including field channels.

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* Irrigation projects costing more than Rs. 5 crores are classed as major schemes, and those costing between Rs. 10 lakhs and Rs. 5 crores as medium schemes.

**Irrigation potential is the area which can be irrigated with the water, made available at channel outlets.

(2) drainage and anti-waterlogging schemes.

(3) medium irrigation projects.

7. It is proposed that out of the total amount of Rs. 620 crores required for completing the schemes taken up in the First and Second Plans, about Rs. 470 crores may be provided in the Third Plan, carrying over a balance of Rs. 150 crores into the Fourth Plan. With this outlay of Rs. 470 crores, an irrigation potential of about 14 million acres will be created which added to 3·5 million acres still remaining to be utilised at the end of the second plan will aggregate to 17·5 million acres. On the basis of the information supplied by the State Governments, the additional utilisation in the Third Plan from these continuing schemes is expected to be 12·5 million acres as shown in Annexure I. In this assessment the States have generally assumed full utilisation within a period of five years in the case of major projects and within two to three years in the case of medium projects from the time water becomes available at outlets of channels. It should be possible to achieve a more rapid rate of utilisation by more vigorous and co-ordinated efforts.

8. Certain new schemes have necessarily to be undertaken in the Third Plan for various reasons, such as storage schemes on river Beas in the Punjab as a result of the Indus Basin settlement, the Gandak Project in U.P. in view of the taking up of this joint scheme in Bihar, etc. Also the irrigation components of certain multi-purpose schemes taken up essentially as power schemes in the Third Plan have to be proceeded with. There have also to be some new medium irrigation schemes primarily from regional considerations and for the development of backward areas. For the new schemes in the Third Five Year Plan, a provision of about Rs. 100 crores has been tentatively proposed.

9. An outlay of Rs. 60 crores was provided in the Second Plan for flood control schemes which included certain drainage schemes also. The importance of providing adequate drainage in irrigated areas to prevent their deterioration by rising ground water table and consequent waterlogged condition has already been emphasised. The cost of drainage works in irrigated areas in continuing and new schemes has to be included in the project costs of these irrigation schemes. Waterlogging in certain parts of the country, particularly in the Punjab, has become serious, and anti-waterlogging measures comprising drains, lining of irrigation channels in selected reaches, pumping of subsoil water to depress the ground water

table, etc. will need to be taken up in the Third Plan on an extensive scale. Similarly, anti-sea-erosion measures in certain coastal reaches, such as Kerala, need attention. A provision of about Rs. 80 crores in the Third Five Year Plan has tentatively been proposed for flood-control, drainage, anti-waterlogging and anti-sea-erosion schemes. All these schemes are to form part of the plans of States.

10. A total outlay of Rs. 650 crores under the head "Irrigation" (which includes flood-control, drainage, anti-waterlogging and anti-sea-erosion), has been proposed for the Third Five Year Plan. A tentative distribution of the outlay and the corresponding benefits under the various groups is as below:—

Table 2: Outlay in third plan

group	outlay	additional benefits	
	(Rs. crores)	potential (million acres) gross	utilisation
(a) irrigation			
continuing schemes	470	14.0	12.5
new schemes	100	2.0	0.5
total	570	16.0	13.0
			net 11.5
(b) flood - control, drainage, anti-waterlogging and anti-sea-erosion schemes	80	5 million acres to be benefited, and 40 to 50 miles of sea coast to be protected.	
total	650		

The above programme will require foreign exchange resources amounting to about Rs. 45 crores.

FINANCIAL RETURNS

11. Irrigation works constructed in recent years and those under construction at present, are much more expensive than those built in the past, partly on account of higher costs of labour and material and partly on account of the more difficult and therefore more expensive means of making supplies available. For this reason, and also on account of the increased cost of maintenance and operation of old and new projects, adequate returns are not being secured. In consequence, irrigation systems are at present working at a loss in almost all States. The Finance Commission, 1957, had drawn attention to the deterioration in the net receipts from irrigation projects. The Planning Commission has examined this

question at some length and suggestions have been made to State Governments regarding the steps to be taken for improving financial returns. These are:—

(1) speeding up of utilisation of irrigation facilities created by irrigation projects,

(2) revision of water rates and introduction of compulsory water cess,

(3) recovery of betterment levy.

12. *Utilisation of irrigation.*—Utilisation of irrigation involves co-ordinated efforts by a number of departments, such as Irrigation, Agriculture, Revenue, Community Development Organisation, Co-operation, etc., working together with the people at the village level. The more important steps necessary for securing speedy benefits from irrigation projects are the following:—

(1) It is essential that there should be synchronisation in the programmes for the construction of headworks, canals, distributaries, water-courses and field channels so as to ensure that as far as possible the irrigation waters can be passed down to the cultivators' fields about the same time as they become available at the headworks.

(2) For speedy utilisation of these irrigation facilities, it is recommended that development blocks should be set up over the entire area to be served by an irrigation project as soon as possible after a project has been sanctioned.

(3) In order to eliminate delay in the excavation of water-courses and field channels, their alignment should be marked out by the project authorities on village maps and these maps should be supplied to the district and block authorities for getting the field channels excavated by the beneficiaries in good time. All States should ensure that at the same time as the canal system is ready, the excavation of field channels by the beneficairies is completed. Village institutions should be empowered to carry out the works and recover costs in case of default.

(4) A large number of other developmental activities have to be carried out simultaneously. These include soil surveys, setting up of experimental farms for determining and evolving new cropping patterns, and farms

for demonstrating scientific irrigation practices particularly the economical use of water.

(5) It is also essential for the departments concerned to undertake advance planning in their respective fields, for instance, for the supply of improved seeds and fertilisers and development of local manurial resources, provision of larger credit and marketing facilities, establishment of warehouses and godowns and improvement of communications in the areas commanded by the irrigation projects.

To ensure that planning in these fields, is undertaken by the departments concerned simultaneously with the planning of construction operations by the Irrigation department, Development Committees consisting of representatives of all the departments concerned are being set up by State Governments. There should be close consultation between the various departments from the earliest stage and the plan of each department should embody within it, in respect of all important irrigation projects, adequate provision for carrying out its appropriate tasks.

13. *Water rates.*—Water rates should ordinarily cover working expenses and debt charges, and irrigation schemes, other than in scarcity areas, should not involve loss to general revenues. The existing water rates in most States are relatively low. While there has been considerable increase in the value of crops produced as a result of irrigation, and maintenance costs have also greatly increased, there has not been a commensurate increase in the water rates, which therefore require upward revision. Further, in States where water charges are optional, there should be a compulsory water cess leviable on the entire area for which irrigation facilities are provided, irrespective of whether water is taken by cultivators or not. This will be a factor in inducing cultivators to make timely use of water and will promote increased crop yields.

14. *Betterment levy.*—Legislation for betterment levy has already been passed in most of the States. Recoveries at the prescribed rate are spread over a period of 15 to 20 years and commence two or three years after irrigation waters become available. The enforcement of the legislation has lagged behind, and the actual realisations have been much below the targets initially proposed for the Second Plan. The need to promote the necessary legislation in the remaining States and to enforce the legislation where it has already been passed, are essential steps to be taken during the last year of the Second Plan.

15. It is important that when an irrigation project is proposed for a new area, the State authorities should place the broad outlines and advantages of the scheme before the agriculturists of that area, in particular the structure of water rates, betterment levy, etc., which have to be paid by the beneficiaries. This education of public opinion is likely to result in prompter utilisation of irrigation and will also facilitate acceptance of the water rates and betterment levy by the beneficiaries when the project materialises.

16. Flood-control, drainage, anti-waterlogging and anti-sea-erosion schemes are especially suited for people's participation. These schemes involve mostly earthwork and do not require any great skill on the part of most of the workers. They are also generally located at convenient distances from the villages benefited by these schemes. It is important that beneficiaries should be persuaded to contribute towards these schemes by offering voluntary labour and/or money in lieu thereof. In preparing proposals and estimates for such schemes, allowance should be made for people's participation, to the extent envisaged in each of the schemes. These works, as also irrigation works, should be carried out in close co-operation with the local organisations like the Panchayat Samiti and the Village Panchayat. Where possible labour co-operatives may be formed which can maintain supplies of tools, obtain contracts from the departments concerned and arrange for execution of works.

INVESTIGATION, RESEARCH AND DESIGNS

17. River valley projects require elaborate investigations. To ensure continuity in the development of water resources, projects and the areas to be benefited by them should be determined and basic engineering surveys carried out in advance. Master plans for long-term development of irrigation should be prepared in each State to bring out clearly the ultimate potentialities and to identify the various possible irrigation and multipurpose schemes. Special investigation units have already been set up in almost all the States. In the Third Plan there should be even greater emphasis on investigations of schemes, so that the most economic of these can be selected for execution.

18. In the Third Plan, it is proposed to enlarge the programme of irrigation research on the lines indicated in the Second Five Year Plan. It is essential to ensure the maximum possible economies in the cost of construction by adopting improved techniques in design and construction, and by proper choice of construction materials.

There should be adequate designs organisations in the States for producing sound and economical designs of structures.

POWER

19. Electricity can be generated from any one of the primary sources of energy available in India: coal, lignite, water power, uranium and thorium reactors, oil, natural and refinery gases. Tidal power, wind power, geo-thermal power and solar radiations are other possible sources of electricity, but their impact on power development in this country has been insignificant so far.

20. Large quantities of low grade coal, not required by the railways or by industry, become available at collieries and coal washeries. These locations are well suited for coal-fired power stations as they utilise these inferior fuels without causing strain on the transport system. As a rule hydro generation is cheap as no fuel is needed. Hydel stations, however, take longer to set up and require relatively larger outlays, although smaller foreign exchange resources are required. By their nature they have to be located in relatively remote localities, generally away from load centres. Lately nuclear power has assumed particular significance. New uranium deposits have been located in the country and these combined with the richest known deposits of thorium in the world provide a large reserve of nuclear power. Nuclear stations are best located in areas which are distant from collieries and where fuel costs are high and alternative cheap hydro-power is not available. Power generation from oil, whether by using diesel oil in internal combustion engines or by burning furnace oil in boilers , is at present very costly compared to coal-fired or hydro-power stations. Moreover diesel oil is in short supply and has to be imported. This type of generation has, therefore, to be confined mainly to isolated locations or small nursery schemes.

21. There is a wide field from which to select any specific method of power generation suited to an area. The key factors to be reckoned in this selection are: the capital costs per kilowatt of installed capacity, the foreign exchange component, the cost per kilowatt-hour generated, the duration of project construction, its impact on other allied development activities such as coal mining, washeries, irrigation, exploitation of natural gas, stimulus to the development of new technology etc. The average production costs of electricity for hydro, coal-fired and diesel power stations are in the neighbourhood of 1·2 nP, 3 nP and 25 nP per kilowatt-hour respectively. The cost of atomic generation estimated at 3·5 to 4 nP will be comparable with coal-fired stations in areas remote

from coal fields. The foreign exchange component of coal-based power stations is two to three times that of hydro stations, while nuclear stations require considerably more than even thermal stations. Because of the different characteristics of the various types of power generation, optimum economy can be achieved by proper balance in the different modes of generation, and interconnecting them as far as possible to meet the varying conditions of power demand such as base, peak and seasonal loads in a grid.

EXISTING DEVELOPMENT

22. The Second Plan aimed at rapid industrialisation with particular emphasis on the development of basic and heavy industries. Power development was therefore a corresponding priority. A considerable rise in the demand for power was noticed in almost all the regions in the country and power availability generally lagged behind the demand. At the beginning of the Second Plan the total installed generating capacity was 3·4 million kW of which 2·7 million kW was in electric supply undertakings in the public and private sectors and 0·7 million kW in industrial establishments generating their own power. Taking into account the targets fixed for industrial development, the Second Plan provided for raising the installed capacity to 6·9 million kW of which 1·0 million kW was to be accounted for by the self-generating industries. The actual achievement, however, is now expected to be 5·8 million kW. Annexure 2 shows the installed generating capacity in the various States at the end of the First Plan, capacity anticipated at the end of the Second Plan and that expected to be reached on the completion of schemes in progress during the Second Plan. The shortfall in the original target has occurred mainly because of foreign exchange difficulties that arose during the early years of the Second Plan; also the completion of some of the major hydro-electric projects such as Bhakra-Nangal, Koyna, Rihand, Hirakud Stage II has been delayed to some extent. In order to avoid conditions of severe power shortage in the early years of the Third Plan necessary measures have been taken to provide foreign exchange for implementing the remaining power schemes which had been originally regarded as 'non-core' projects. Work has also been taken up on a few additional power schemes which were not originally included in the Second Plan with a view to meeting specific increases in regional demands that arose during the Plan period. Further, arrangements have been made to commence preliminary works on selected Third Plan power schemes during the last year of the Second Plan.

23. The total outlay on power during the First Plan was of the order of Rs. 260 crores in the public sector and Rs. 32 crores in the private sector. The corresponding figures in the Second Plan are estimated at Rs. 410* crores and Rs. 37 crores respectively. Industrial establishments providing their own power accounted for an additional outlay of about Rs. 10 crores in the First Plan period and of about Rs. 28 crores during the Second Plan.

GROWTH OF INSTALLED CAPACITY AND ENERGY GENERATED

24. Power development is directly related to industrial development as may be seen from the fact that more than 75 per cent of the electricity consumed is used for industrial production and other associated uses. The emphasis on heavy and basic industries is continued in the Third Plan and this necessitates adequate forward planning in regard to power also. After examining the targets that have been fixed for the various industries, railway traction etc., it has been found that power generating capacity should be increased from 5·8 million kW to 11·8 million kW during the Third Plan period. This is in line with the long term target of 30 million kW of installed generating capacity by 1975-76. The growth of installed capacity and energy generated is set out below:—

Table 3: Growth of installed capacity and energy generated

	1950-51	1955-56	1960-61 (estimated)	1965-66 (estimated)
3.1 installed capacity in million kW				
1 state-owned public utilities	0·6	1·4	3·3	9·1
2 company-owned public utilities	1·1	1·3	1·5	1·6
3 self-generating industrial establishments	0·6	0·7	1·0	1·1
4 total	2·3	3·4	5·8	11·8
3.2 energy generated in million kWhrs				
1 state-owned public utilities	2104	4500	12100	42250
2 company-owned public utilities	3003	4300	5600	
3 self-generating industrial establishments	1468	2200	3000	
4 total	6575	11000	20700	42250

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*If account is taken of the additional investment made outside the Plan from their own resources by D.V.C. and certain State Electricity Boards, the total investment on power in the public sector will be of the order of Rs. 460 crores.

Installed capacity by type of plant is also shown below:—

Table 4: Installed capacity by type of plant

(in million kW)

group	1951	1956	1961 (estimated)	1966 (estimated)
1 hydro plant	0.56	0.94	2.10	4·75
2 steam plant*	1.60	2.27	3·45	6.50
3 oil plant	0.15	0.21	0.25	0.25
4 nuclear plant	—	—	—	0.30
5 total	2.31	3·42	5·80	11.80

PROGRAMME FOR THE THIRD PLAN

25. The Third Five Year Plan envisages an outlay of Rs. 975 crores for power, of which Rs. 925 crores will be in the public sector and Rs. 50 crores in the private sector. Approximate break-up of the outlay in the public sector is Rs. 580 crores for hydro and thermal generating schemes, Rs. 51 crores for atomic power and Rs. 24 crores for uranium mining, fabrication and plutonium extraction plant and Rs. 270 crores for transmission, distribution and rural electrification. Salient figures are given below:—

Table 5: Outlay and benefits

group	outlay in the third plan Rs. crores	benefits during the third plan in million kW	benefits in fourth or later plans in million kW
1 schemes carried over from the Second to the Third Plan	230	2·4	0·4
2 new schemes which will yield benefits in Third Plan	620	3·6	0·8
3 new schemes which will yield benefits in Fourth or subsequent plans . .	75	..	3·0
4 total	925	6·0	4·2

The foreign exchange component of the power programme in the Third Plan is estimated at Rs. 270 crores. The above figures are rough indications and may need to be amended after details of the proposals of States are finalised. Increase in generating capacity in each State will be carefully examined in relation to the industries proposed to be set up in the State. The provision for meeting power requirements arising from the steel plant at Bokaro is to be found from the allocation under "Industries and Minerals".

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*As the type of generating plant in self-generating industrial establishments is not precisely available entire capacity is shown as steam plant.

The Third Plan at present provides for the installation of 300,000 kW of nuclear power. Further proposals of the Atomic Energy Commission for the expansion of nuclear energy are under consideration.

26. The transmission network would be further strengthened and extended during the Third Plan as shown in the Table below:—

Table 6: Transmission lines

	transmission lines 11 kV and above (circuit miles)
1955-56	35,000
1960-61	70,000
1965-66	150,000

About Rs. 165 crores are proposed to be spent during the plan period on transmission lines and substations, in addition to the provision for subtransmission lines contained in the outlay of Rs. 105 crores for rural electrification.

RURAL ELECTRIFICATION

27. By the end of the Second Plan the total number of towns and villages electrified in the country will be about 19,000 as against 7,400 at the end of the First Plan. The Third Plan provides for the electrification of further 15,000 villages and towns with an estimated outlay of Rs. 105 crores. The following Table gives the break-down in terms of population range, the number of towns and villages which have been electrified during the principal plan periods and the number expected to be electrified at the end of the Third Plan.

Table 7: Towns and villages electrified

population range	total number according to '51 census	number electrified by March 1951	number electrified by March 1956	number electrified by March 1961 (estimated)	number electrified by March 1966 (estimated)
over 1,00,000	73	49	73	73	73
50,000 to 1,00,000	111	88	111	111	111
20,000 to 50,000	401	240	366	399	401
10,000 to 20,000	856	260	350	756	856
5,000 to 10,000	3101	258	1200	1800	3101
less than 5,000	556565	2792	5300	15861	29458
total	561107	3687	7400	19000	34000

28. There are a number of isolated areas where small hydro plants of 10 to 100 kW each can be set up at a modest cost. Small hydro units upto 100 kW capacity are now being manufactured in the country. In the long run, they will be more economical than diesel-alternator sets and relatively easy to maintain, and will not involve foreign exchange for their procurement or operation. A separate unit has been set up in the Central Water and Power Commission for initiating and assisting in field surveys and in the installation of such plants. It is suggested that State Governments should give special attention to this aspect of power development and formulate suitable programmes.

29. Rural extensions of electricity become relatively uneconomic mainly because of distances separating individual villages, the low level of power consumption and the seasonal character of the requirements of power specially in agriculture. With a view to improving the load factor it is important that different types of economic activities in each district should be developed in a coordinated manner. This object can be secured through a carefully formulated development programme for each area covering the activities in different fields of development such as minor irrigation, credit and service facilities for equipment, good seeds and manure, village and small scale industries etc. so that rural electrification makes the maximum contribution possible to the increase of agricultural and industrial production. There should be forward planning for rural electrification over a period of two or more years ahead of taking up the work so that simultaneous action is initiated in other sectors also. To facilitate the drawing up of definite schemes for the utilisation of power as part of the district development plan the State Electricity Boards should indicate in advance to the district agencies concerned their estimates of the amount of power likely to be available under the Third Plan for rural areas and small towns under the State Plan for power development. It has been recommended to States that in every district where electric facilities exist or are likely to be available a small committee should be set up to plan and advise on rural development programmes. These programmes should be worked out in sufficient detail and with the necessary phasing in terms of limited areas, such as, a small town and its neighbourhood or a group of villages which have a common source of power and can, therefore, have a well conceived economic development programme. These district plans should be implemented as part of the State Plans so that the development of rural electrification keeps in step with the programme for additional generating capacity.

OTHER ASPECTS

30. In accordance with the requirements of the Electricity (Supply) Act, 1948, autonomous Electricity Boards have been set up practically in all the States. It is necessary that electricity undertakings in the public sector should earn reasonable surpluses and build up the reserves for financing future development. This has become particularly necessary because of the growing volume of investment in the public sector in this field, the capital intensive nature of power development and the rapid growth in demand.

31. In 1957 the Finance Commission referred to the unsatisfactory financial results in the working of electricity undertakings and emphasised that the State Governments should take adequate steps to ensure that the Electricity Boards were run in such a manner as would enable them to meet the interest burden on the outstanding loans due to the States. A recent review of the finances of the various Electricity Boards has revealed that the position has not shown any improvement. The principal steps that should be undertaken for substantially improving the financial position of the Boards are:

(1) selection of the most economical projects for power generation;

(2) achieving utmost economy in construction costs;

(3) phasing of projects in such a way as to reduce the lag between the availability of benefit and its utilisation;

(4) maximum utilisation of the existing generating capacity by building up loads in such a way as to improve the plant and load factors;

(5) operating the power stations at the highest efficiency by various measures such as by effecting fuel economies, reduction of losses etc.,

(6) interconnected operation with the grids in the adjoining States; and

(7) readjustment in tariffs and electricity duties.

It is proposed that these aspects should be examined carefully and suitable steps taken to augment the revenues.

32. Experience in the Second Plan has underlined the fact that our dependence for electrical equipment on imports is a serious obstacle to rapid development of power. Even during the third plan the country will have to depend on foreign imports for quite

a large proportion of the machinery and equipment required. In addition to completing the first heavy electrical plant at Bhopal and further expanding it during the third plan additional plants both in the public and private sectors are also being planned for immediate development. These, when completed, are expected to meet a substantial portion of the country's need in the fourth plan for hydraulic and steam turbines, boilers, alternators, motors, transformers, switchgear etc.

33. There are several aspects of power programme which will require continued attention in the Third Plan. These are:—

(1) *Investigations of hydro-electric projects.*—The hydro-electric potential of the country has been assessed at 40 million kilowatts. By the end of the Third Plan only 11 per cent. of this will have been exploited. As hydro-electric projects require extensive investigations, there has been a paucity of fully investigated projects which had hampered the more rapid development of this source of cheap power. In several States separate investigating units have already been set up. But the volume of work yet remaining to be done is so large that more attention will have to be given to it in the Third Plan.

(2) *Standardisation of equipment.*—The Central Water and Power Commission have already worked out a manual of construction for rural extensions with a view to standardisation and lowering of construction costs. Similar approach for thermal power stations, transmission line practices and sub-stations is desirable.

(3) *Research.*—Research on problems of generation, transmission and distribution will be carried out in the Power Research Institute being built at Bangalore. A switchgear testing station is being set up at Bhopal for testing and developing designs of switchgear.

(4) *Load surveys.*—A systematic survey of prospective loads in the various regions and periodic review of the same should be conducted by the State Electricity Boards and the Central Water and Power Commission.

(5) *Design and construction.*—The need has been felt for the setting up of a specialist organisation to plan, design and construct large hydro and thermal stations which are at present being done through foreign consultants. It is proposed to develop this type of organisation in the country during the Third Plan.

34. The inter-connection of power stations and power systems will improve the performance of Electricity Supply Undertakings by raising the load factor, by reducing the stand-by machinery and by enabling the most efficient operation of the available plant. It is, therefore, desirable that all power stations should, to the extent feasible, be inter-connected into a State grid and the State grids tied into a zonal or regional grid, thus making it possible to exchange power and ensure optimum benefits.

35. There has been inter-State cooperation in the past in the execution of projects such as Bhakra-Nangal, Machkund, Tungabhadra, Chambal, etc. Such cooperation needs to be further extended in the Third Plan for harnessing the large hydro-electric potential, a considerable part of which is concentrated in certain regions like the Western Ghats.

ANNEXURE 1

Benefits expected from continuing major and medium irrigation schemes

('000 acres)

sl. no.	state	end of second plan		end of third plan	
		potential	utilisation	potential	utilisation
1	2	3	4	5	6
1	Andhra Pradesh . .	830	735	2035	1640
2	Assam . . .	..	..	..	..
3	Bihar	915	720	2840	1980
4	Gujerat . . .	725	245	2150	1685
5	Jammu & Kashmir .	20	20	110	105
6	Kerala	370	355	540	540
7	Madhya Pradesh . .	80	60	1360	1030
8	Madras	545	545	820	770
9	Maharashtra . .	275	165	1250	825
10	Mysore . . .	780	475	1470	1420
11	Orissa . . .	1000	720	2385	2185
12	Punjab . . .	3640	2975	4330	4215
13	Rajasthan . . .	965	690	2375	1900
14	Uttar Pradesh . .	2375	1565	3975	2580
15	West Bengal . . .	1700	1290	2685	2235
16	total . . .	14220	10560	28325	23110
	say (million acres) .	14·0	10·5	28·0	23·0

NOTES:—

1. "Potential" is the area which can be irrigated with the water made available at channel outlets.

2. All the above figures pertain to gross irrigation as distinct from net irrigation.

ANNEXURE 2

Progress of installed power generating capacity in various states',

no.	state	installed capacity in megawatts: beginning of second plan	installed capacity in megawatts: end of second plan	installed capacity in megawatts: on completion of second plan schemes in progress
1	2	3	4	5
1	Andhra Pradesh	180·0	303·6	482·4
2	Assam	6·6	20·0	55·0
3	Bihar	479·0	641·5	896·5
4	Gujerat	300·0	405·0	445·0
5	Jammu & Kashmir	13·0	26·5	31·0
6	Kerala	89·0	166·0	350·0
7	Madhya Pradesh	140·5	305·2	450·7
8	Madras	167·0	582·0	732·0
9	Maharashtra	508.0	788·5	1038·5
10	Mysore	200·0	234·0	452·6
11	Orissa	21·0	280·6	390·1
12	Punjab	152·0	377·4	467·4
13	Rajasthan	71·0	169·1	265·6
14	Uttar Pradesh	324·0	423·0	833·0
15	West Bengal	710·0	966·5	1211·5
16	Delhi	65·0	89·0	119·0
17	Other Union Territories	7·2	11·5	11·5
18	total	3433·3	5789·4	8231·8

CHAPTER X

VILLAGE AND SMALL INDUSTRIES

PROGRAMMES of village and small industries were given an important place in the First and Second Plans because, besides providing employment, they assure a broad and decentralised base to the national economy. The objectives which the programmes are intended to serve in the Third Plan are broadly the same as in the Second, namely, to provide employment, to meet a substantial part of the increased demand for common consumer goods and simple producers' goods and to provide the basis for a progressive and efficient decentralised sector closely integrated with agriculture as well as with large scale industries. The scale of effort in the Third Plan will, however, be broadened further and emphasis will be on promotion of these industries in rural areas and small towns.

2. The programmes will continue to be guided by the following approach:—

(1) the relative contributions of small and large units in meeting the growing requirements of the community will be defined as part of common production programmes for various industries;

(2) small units will be assisted to improve their organisational and technical efficiency; and

(3) artisans and craftsmen will be helped to organise on cooperative lines, especially in the rural areas.

REVIEW OF PROGRESS

3. The programmes for handloom, khadi, village industries, small scale industries (including industrial estates), handicrafts and sericulture have recently been reviewed by six Working Groups set up by the Ministry of Commerce and Industry. The working of the twenty-five industrial pilot projects taken up in 1955 under the Community Development programme has also been assessed by a Study Team. Progress so far has been encouraging on the whole.

4. *Handloom and khadi.*—Production of handloom cloth has increased from 742 million yards in 1950-51 to about 2,125 million yards in 1960-61. Production of traditional khadi which was about 7 mil-

lion yards in 1950-51 is expected to increase to about 48 million yards and of khadi made from a mixture of Ambar yarn and ordinary charkha yarn to about 32 million yards by 1960-61. The total number of looms in the cooperative sector has increased from 680,000 in the middle of 1953-54 to about 1·2 million at the beginning of 1959-60. Fuller employment has been provided to about 3 million handloom weavers, and part-time employment to about 1 million spinners, besides whole-time employment to carpenters, blacksmiths, etc., engaged in production or repair of equipment in *saranjam karyalayas*. Marketing of khadi presented considerable difficulties during the later half of the second plan period and sales of handloom cloth have also had occasional setbacks. Installation of powerlooms by cooperatives of handloom weavers has been slow and out of 13,000 powerlooms already sanctioned, only about 3,500 are expected to be installed by the end of 1960-61.

5. *Small scale industries.*—In spite of the shortages of certain basic raw materials like pig iron, steel and non-ferrous metals, the growth of small scale industries has been quite impressive. In a number of industries including sewing machines, electric fans, bicycles, builders' hardware and hand tools there have been increases in production varying from 25 to 50 per cent and in some cases even higher. Machines valued at about Rs. 2 crores have been supplied by the National Small Industries Corporation under the hire-purchase scheme which was introduced in 1956. As a part of the industrial extension service, Small Industries Service Institutes have been set up in all States and 42 Extension Centres have been established. Courses in business management for imparting training to small industrialists have been organised. Government purchases of different kinds of stores from small industries increased from Rs. 75 lakhs in 1953-54 to about Rs. 4.5 crores in 1958-59. About 60 industrial estates are expected to be established by the end of second plan. In all they will contain about 700 factories or workshops, providing employment to about 10,000 persons. It is estimated that full-time employment will have been provided by the end of the second plan to about 300,000 persons. No significant progress was, however, made in developing small scale units as ancillaries to large scale units, in bringing about dispersal of industries and in working out common production programmes. Greater emphasis has to be given to these aspects in future. The organisation of the extension services also needs to be strengthened and a new approach has to be made in regard to training-*cum*-production centres.

6. *Village industries.*—The development of village industries is hampered by the present low level of technology and by shortage of trained and experienced supervisory personnel. There is also the

need for relating the programmes of development for these industries to other rural development programmes in each area and for building up an efficient organisation reaching out to blocks and villages. While these industries have helped to provide partial relief to village artisans and under-employed women workers in the villages, they have not been able to provide fully remunerative work or to attract youngmen with some measure of training and education. In the first three years of the second plan, actual utilisation of funds was slow and only a small impact could be made by way of extension of more efficient techniques or organised supply of raw materials and marketing. Greater progress is expected during the last two years of the plan.

7. *Handicrafts.*—Available data about handicrafts are inadequate, but there has been some improvement in exports and internal sales. Some of the factors which retarded progress were lack of credit facilities and shortage of trained and technical personnel as well as of certain essential raw materials.

8. *Sericulture.*—Production of raw silk increased from 3.05 million lbs. in 1956 to 3·34 million lbs. in 1958, as against the target of 4 million lbs. in 1960-61 fixed by the Central Silk Board. The high cost of production of raw silk continues to be the main problem of the industry.

9. *Coir industry.*—Progress in the coir industry has been generally slow. The problems of the industry have been recently reviewed by the Coir Enquiry Committee and its recommendations for strengthening the organisational and financial position of the coir cooperatives are being implemented.

PROPOSALS FOR THE THIRD PLAN

10. For the Third Plan the principal physical targets proposed are:—

Table 1: Proposed targets

	unit	1960-61 (anticipated)	1965-66 (target)
handloom	million yds.	2,125	3,500
powerlooms			
(a) in the handloom sector	,,	405	
(b) others	,,		
khadi			
(a) traditional	,,	48	
(b) Ambar	,,	32	
		2,610	
raw silk	million lbs.	3·7	5·0
industrial estates	no.	60	360
powerlooms to be installed in the handloom sector	no.	3,500	13,000

Further development in terms of larger provision of credit, training facilities and technical assistance, marketing aids, etc., is envisaged in the field of small scale industries, handicrafts, village industries and coir.

11. A total outlay of Rs. 250 crores in the public sector has been provisionally suggested for the development of village and small industries under the Third Plan. The tentative break-up of the outlay between different industries is indicated below along with the corresponding anticipated expenditure during the second plan period:—

Table 2: Tentative allocations

	second plan (anticipated expenditure)	third plan (tentative allocations)
	(Rs. crores)	
handloom and powerlooms in the handloom sector	32.1	36.0
khadi, Ambar khadi and village industries	80.5	89.0
small scale industries and industrial estates	56.3	107.0
handicrafts	5.3	8.0
sericulture	3.8	7.0
coir industry	2.0	3.0
total	180.0	250.0

12. The provisional distribution of allotments shown above is intended primarily to facilitate more detailed work on the preparation of schemes. It is recognised, however, that in some fields larger allocations may have to be considered when further studies have been completed. The outlay of Rs. 250 crores by the Central and State Governments will be in addition to such provisions for small industries as may be found within the community development blocks under their separate budgets and the funds provided for the rehabilitation of displaced persons, social welfare schemes and the welfare of backward classes. It includes, however, provision for such working capital as may be required until institutional credit facilities become available.

13. With a view to obtaining larger funds from the banking institutions for the development of village and small industries, it is proposed to offer a Government guarantee for loans to these industries. Under the pilot scheme of credit guarantee to be taken up shortly, Government will share part of the risk in the initial years. The scheme is to be operated by the Reserve Bank of India on behalf of

Government. Another proposal is to try to obtain funds from the institutional agencies, if necessary by giving a Government guarantee for loans to certain well-established organisations like the Khadi and Village Industries Commission.

14. Besides the outlay in the public sector, about Rs. 275 crores are expected to be invested from private sources. On the basis of the total investment, it is estimated that the various programmes may provide part-time or fuller employment for about 5 million persons and whole-time employment for about 800,000 persons. Programmes for the handloom industry, powerlooms in the handloom sector and village industries are expected to provide fuller employment and those for hand-spun yarn for the production of khadi part-time employment. Programmes for small scale industries including industrial estates, handicrafts, sericulture and coir spinning and weaving are expected to create mostly whole-time employment.

15. Programmes for these industries are intended to provide basic facilities and assistance so as to create conditions favourable to their growth. The emphasis is on improving technical and organisational efficiency so that these industries may become a self-supporting sector of the economy. The role of subsidies, rebates on sales and sheltered markets is to be progressively reduced, and efforts directed more intensively towards improving the productivity of the worker through positive forms of assistance. Attention has to be specially focussed on improving existing skills and tools and, at the same time, on imparting higher skills and introducing new equipment and building up for this purpose an enlarged extension service, including common service facilities. Artisans, entrepreneurs and cooperatives will need to be specially assisted in respect of workshop accommodation, credit, marketing and technical advice. Opportunities would thus be created for young trained technicians to take to small industries as full-time occupations. Steps will also have to be taken to ensure that the expenditure on overheads and buildings is kept to the minimum. It is important that there should be effective coordination in regard to the activities of the various Boards and State Governments in setting up emporia and sales depots and organising publicity so as to avoid duplication of effort and expenditure. Similarly, in providing training facilities, specially for rural artisans, the programmes of the various Ministries and State Governments will have to be suitably coordinated.

16. The various aspects of the promotion of industrial cooperatives were examined in 1958 by a special Working Group. Decisions have already been taken by Government on its recommendations and their implementation will strengthen these cooperatives. In the sphere of

small scale industries, where small entrepreneurs predominate, industrial associations should be helped to play an important role. A number of such associations exist, but steps have to be taken to increase their membership and to federate them into larger organisations.

PROGRAMMES OF DEVELOPMENT

17. Details of the programmes of aid and assistance which are to be financed from public outlays will be worked out by the Boards and the State Governments in the course of the next few months. The salient features of the programmes as at present envisaged are given below.

18. *Handloom and khadi.*—Of the total target of 9,300 million yards of cloth, the target envisaged for the decentralised sector of the textile industry is 3,500 million yards. Its break-up as between different segments of the decentralised sector, namely, the handloom, powerlooms in the handloom sector, other powerlooms and khadi including that made from a mixture of Ambar and ordinary charkha yarn, is yet to be finally determined. For the handloom industry, however, a production target of 2,800 million yards of cloth by 1965-66 has been suggested and it is proposed to bring into active use about 200,000 looms which are at present idle, to improve productive efficiency through technological improvements, including gradual installation of semi-automatic looms, and to strengthen the structure of the cooperatives. Regarding the powerlooms in the handloom sector, it is proposed to concentrate on the installation of 13,000 powerlooms already approved during the second plan. The emphasis in organising the additional production of khadi will be on meeting local requirements of consumption so that the difficulties of marketing large surplus quantities are avoided.

19. *Village industries.*—Much useful experience has been gained in recent years in the development of village industries. Besides consolidating the work already done, the emphasis during the third plan will be primarily on intensive efforts in selected areas and on the co-ordination of the programmes for these industries more closely with other schemes of rural development. On a long-term view, it is likely that the existing character of village industries will change through the use of improved techniques so as to meet increasingly the requirements of progressive rural communities. As a result of experience, the Khadi and Village Industries Commission is already introducing the use of power for such purposes as pulp-making for the manufacture of paper, crushing of non-edible oilseeds, gur and khandsari and the manufacture of sugar from palm. Further

possibilities of using power on a decentralised basis in village industries are being studied. The activities of the Khadi and Village Industries Commission, State Khadi and Village Industries Boards and the State Governments will have to be closely co-ordinated so that programmes for these industries can make a substantial contribution to development in each area.

20. Rural industries run on efficient lines have an important role in providing opportunities of work and thus contributing to the solution of the problems of under-employment and unemployment. It is proposed to draw up for the Third Plan a comprehensive programme which will take care of the various requirements of the rural artisans and craftsmen, namely, adequate facilities for training, provision of credit under an easy procedure and at reasonable rates, technical assistance provided through extension services and common service facilities, supply of improved tools, facilities for purchase of raw materials in short supply, assistance in the marketing of goods through sales depots and purchase of Government stores and, where necessary, construction of worksheds.

21. *Small scale industries.*—Programmes for development in this field have two main aims during the third plan, namely, (a) expansion of existing schemes such as extension services, provision of common service facilities, supply of machines on hire-purchase terms, training, economic research and surveys, etc.; and (b) emphasis on the development of ancillary and feeder units. As far as possible, development of small scale industries will be linked up with schemes for the development of power and an attempt made to build up nuclei of small industries within the reach of existing and proposed transmission lines. The main consideration requiring emphasis here is that along with the programmes for carrying electricity to small towns and rural areas, State Governments and agencies concerned at the district and block level should plan in detail for the utilisation of power and should endeavour to make all the facilities needed available to artisans, cooperatives and small entrepreneurs.

22. In the second plan, a few schemes were initiated with the object of developing small units as ancillaries or as feeders to large units through voluntary arrangements. Among the difficulties reported to have been experienced by large units in the initial stages are uncertainty concerning regularity of supply and the uneven quality of the products manufactured by small units. The small units, on the other hand, are some times handicapped by lack of sufficient equipment and the necessary facilities for obtaining drawings,

designs and specifications. The subject is under examination at present by a committee set up by the Ministry of Commerce and Industry.

23. Surveys, both all-India and regional, of a large number of small scale industries have been carried out in recent years by the economic investigation teams of the Ministry of Commerce and Industry. It is proposed that the more important aspects of the development of these industries should be studied in greater detail and proposals for their future development worked out. In particular, the relative contribution which these industries can be expected to make in relation to the large scale industries and the extent to which processes of production can be decentralised through their establishment will have to be borne in mind in working out the broad outlines of programmes for their development. During the first and second plans, spheres of production of small and large units were demarcated in the case of some industries, such as cotton textiles and agricultural implements. In a few other industries such as bicycles, sewing machines and storage batteries, after estimating the requirements, separate targets of production were laid down for the large scale and the small scale sectors. It is proposed to examine further action on these lines in industries like agricultural implements and machinery, machine and hand tools, bicycles and bicycle parts, sewing machines and sewing machine parts, automobile and diesel engine parts, radio receivers and amplifiers, tanning and footwear, fruits and vegetable preservation, cotton textile machinery parts, electric motors (fractional) and fans, paints and varnishes, storage batteries, scientific and table glassware, surgical and mathematical instruments and plastic products.

24. *Industrial estates.*—The first priority will be the completion of industrial estates started but not completed during the second plan. It is proposed to set up about 300 new industrial estates of varying sizes during the third plan period and to locate them as far as possible in small and medium-sized towns and selected rural areas where facilities like power, water supply and transport are available. A rural industrial estate may consist of a small number of worksheds. Care will have to be taken to locate such estates in areas where there is a sufficient number of artisans and craftsmen and where improvement in economic conditions provides opportunities for the use of improved techniques and better tools.

25. *Handicrafts.*—Emphasis in the third plan will be mainly on improvement of the quality and marketability of the products through assistance to artisans in obtaining raw materials, provision of better

designs and credit facilities, etc. The activities of the pilot centres for production and training and the design centres set up by the Board will be coordinated with similar activities undertaken by the State Governments.

26. *Sericulture.*—A production target of 5 million lbs. of raw silk has been tentatively suggested for the third plan. The principal aim in the third plan will be to reduce the cost of production of raw silk through programmes for increasing the yield per acre of mulberry, to create a sound seed organisation and to replace a large number of the traditional charkhas by cottage basins.

27. *Coir industry.*—The main emphasis in the third plan will be on bringing a large section of the industry within the cooperative fold, strengthening the primary coir cooperatives and the central marketing socities and assisting the industry as a whole from the standpoint of increasing exports of coir goods. A pilot scheme is also proposed to be taken up for the introduction of small spinning machines for improving the quality of coir yarn. Other items in the programme are better facilities for dyeing and processing, development of bristle fibre and rope making, utilisation of coconut pith and waste, etc

CHAPTER XI

INDUSTRIES AND MINERALS

OBJECTIVES & PRIORITIES

THE industrial plan for the period 1961-66 has to be governed by the over-riding need to lay the foundations for rapid industrialisation over the next 15 years, if long term objectives in regard to national income and employment are to be achieved. From this point of view it is essential to press forward with the establishment of basic capital and producer goods industries—with special emphasis on machine building programmes—and also with the acquisition of the related skills, technical know-how and designing capacity, so that in the following plan periods the growth of the economy in the fields of power, transport, industry and mineral production will become self-sustaining and increasingly independent of outside aid.

2. There are, however, other factors which have also to be kept in mind. Thus, while long term objectives require concentration on capital goods industries and increased production of processed industrial raw materials, the industrial programme for the Third Plan has also to provide, to the extent possible, for meeting the demand likely to be generated over the next 5 years for a wide range of other manufactured goods. Owing to the need to devote a large portion of available resources to laying the foundation for future development, it may be difficult to meet this demand in all cases. The aim is to provide fully for essential needs, but some restraint on consumption will be unavoidable, especially in the case of goods of a luxury or semi-luxury character, production of which it will be difficult to increase *pari passu* with the growth of potential demand.

3. The operation of industries depends not only on markets but also on the supply of raw materials, power, fuel and facilities for transport. Industrial programmes have, therefore, necessarily to take into account, and will in fact be limited by, the rate at which the supply of raw materials, power etc. can be increased. In particular, power and fuels are likely to be inhibiting factors. This may entail foregoing in some instances the adoption of industrial processes which make a heavy demand on electric power, notwithstanding their attractiveness.

4. *Experience and lessons of the Second Plan*—Though foreign exchange difficulties have somewhat retarded industrial progress in the Second Plan, the achievements are on the whole by no means discouraging. The total financial investment over the five year period is expected to exceed the outlay of Rs. 1094 crores originally envisaged and amount to about Rs. 1450 crores net, the shares of the public and private sectors being Rs. 775 and Rs. 675 crores respectively. A large part of the excess expenditure is in respect of the iron and steel expansion programmes which, partly owing to a rise in prices, have cost considerably more than originally estimated. As against this excess expenditure there are shortfalls in respect of certain projects and physical targets. In the case of several important projects, *e.g.*, the Heavy Electrical Equipment Project, Raw Film Project and Rourkela Fertiliser Factory while action has been initiated during the Second Plan, progress has been rather slow mainly on account of foreign exchange difficulties. As regards physical targets, the level of output of industrial machinery at the end of the second plan is likely to be lower than was originally hoped. The other notable shortfalls are in respect of the production of iron and steel, nitrogenous fertilisers, aluminium, newsprint and chemical pulp. In the case of iron and steel, the shortfall has deprived the economy of benefits reckoned upon for the start of the Third Plan. The shortfall is not so much due to delays in installation—except in the case of coal washeries which have fallen considerably behind the plan schedules—as in securing smooth and continuous operation of new capacity.

5. In retrospect, the experience of the Second Plan has highlighted the stresses and strains imposed by rapid industrialisation on an economy which, owing to lack of domestic industry and deficiency in many basic industrial raw materials and also in technical personnel, is compelled to depend upon external sources for the machinery and know-how required for expansion and for a considerable portion of the raw materials required to keep industry in operation. It has also brought out that the gestation period of a project is generally longer than anticipated, especially in the case of heavy industries.

INDUSTRIAL POLICY

6. The expansion of industry will continue to be governed by the Industrial Policy Resolution of April 1956. As in the Second Plan the roles of the public and private sector are conceived of as supplementary and complementary to one another. For example, in the case of nitrogenous fertilisers where the public sector has already assumed a dominant role, it is envisaged that during the Third Plan

for meeting the continuing arrears of replacement and modernisation in certain pre-war industries.

12. The broad distribution of the investment of Rs. 2500 crores between different major groups of industries and minerals is envisaged as follows:—

industrial group	investment in 1961—66 (Rs. crores)
metallurgical and engineering industries	1200
chemical & allied industries (heavy chemicals, fertilisers, drugs, plastics, dyestuffs, cement, paper etc.)	650
textile industries	125
food industries	75
minerals	405
miscellaneous (including townships and housing colonies for Government industrial projects)	45
total	2500

PUBLIC SECTOR PROGRAMMES

13. Programmes in the public sector may be broadly classified as follows:—

(1) Projects under execution and carried over from the Second Plan.

(2) New projects for which external credits are already assured.

(3) New projects which can be for the present regarded as included in the Plan. Most of these have reached a fairly advanced stage of preparation, but no foreign credits have yet been arranged.

(4) Other new projects on which preparatory work is less advanced and for which no foreign credits have yet been arranged. No definite decision has yet been taken about the inclusion in the Plan of projects falling in this category. They will be worked out in fuller detail and may, in due course, be considered for inclusion in the Plan in substitution of some projects in category (3) or even otherwise, if the necessary external and internal resources can be made available and other circumstances are favourable.

(5) Projects of a contingent nature whose implementation will depend on developments which cannot at present be accurately foreseen e.g. pipelines and refineries in respect of new reserves of mineral oil that may be proved.

The list of projects under these categories is shown in Annexure 'I'.

14. Major developments planned in industries in which the public sector plays a large role, *viz.*, iron and steel, coal, industrial machinery, mineral oils and petroleum refining, iron ore and other minerals, fertilisers, basic chemicals and intermediates and essential drugs are briefly reviewed below.

15. *Iron & Steel.*—The development programmes outlined in this field cover expansion of capacity for mild steel (rolled), for alloy, tool and special steels including stainless steels (rolled) and for pig iron for sale. The targets suggested for these basic developmental commodities take into account the requirements of growth dictated by long-term perspectives, the allowance to be made for a reasonable gestation period after the commissioning of the new plants for the achievement of outputs corresponding to plant capacities and the levels of demand visualised for the last year of the Third Plan. The requirements of finished steel and of pig iron for sale by 1965-66, are provisionally estimated at about 7·3 million tons and 1·5 million tons respectively. As regards alloy, tool and special steels, the overall demand by 1965-66 has been placed at 200,000 tons for planning the expansion programmes.

16. Against the background of the above projection of demand, planning is at present proceeding in relation to a capacity target of 10·2 million tons of mild steel ingots, 1·5 million tons of pig iron for sale and 200,000 tons of alloy, tool and special steels. The target for the alloy, tool and special steels is expected to be achieved upto 130,000 tons per year in the public sector and upto 70,000 tons per year in the private sector. Part of the output in the public sector (about 30,000 tons of transformer grade electrical steel sheets by 1965) is expected to be planned and produced under the expansion programme of the Rourkela steel plant while the output of the Ordnance Factories is expected to amount to about 50,000 tons per year. The balance of 50,000 tons within the public sector is to be planned in a new unit whose location will be decided during the current year after the receipt of the project report. The importance of this project is to be judged not by the tonnage of output but by the production of the very high priced products on which large-scale foreign exchange

would have to be otherwise expended for meeting the domestic demands. The bulk of these requirements are of the highest priority being connected with machinery and industrial plant manufacture. The expenditure to be incurred on this new unit is tentatively estimated at about Rs. 35 crores and the foreign exchange component at about Rs. 20 crores.

17. As regards mild steel and pig iron for sale, the contribution of the private sector for the realisation of the targets is envisaged to be only marginal as outlined in paragraph 63 below. The developments in the public sector included in the Third Plan comprise the expansions of Bhilai, Rourkela and Durgapur steel plants and of the Mysore Iron & Steel Works and the establishment of a new steel plant at Bokaro. The nature of end-products proposed for manufacture under these schemes has kept in view the demand for different categories of mild steel by 1965-66, the facilities for specialised production as well as the surplus capacities, particularly in the finishing mills, available at the different public sector plants. The levels of developments visualised under these public sector programmes are given below:—

scheme	target capacity	
	steel ingots	free pig iron
	(million tons)	
(a) expansion of :		
Bhilai	2.5	0.3
Durgapur	1.6	0.3
Rourkela	1.8	—
(b) expansion of Mysore Iron and Steel Works	0.1	—
(c) Bokaro Steel Plant	1.0	0.35
total	7.0	0.95

In relation to these programmes, the overall investment requirements covering the main plants proper and ancillary facilities aggregate to Rs. 571 crores* according to the current estimates. The provision in the Outline for these schemes is Rs. 506 crores which is expected to be supplemented by additional funds from the allocation for industrial townships separately made. Even so, there would be a marginal shortfall in relation to investment requirements mainly in respect of ancillary facilities. If required, upward adjustments would have to be made in respect of this Plan provision in due course having regard to the importance of achieving the target for iron and steel.

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*The investment required for coal, iron ore, outside power, railway transport etc. for the Bokaro Steel Plant is also included in this estimate.

18. A pig iron plant based on low shaft blast furnace techniques and use of coke from Neiveli lignite is also included in the Outline as a project on which preparatory work should continue with a view to reaching decisions in due course.

19. Inclusive of the capacity of the main producers in the private sector (3 million tons of steel ingots) and small-scale electric furnaces producing billets for re-rolling, the overall capacity expected to be installed under the iron and steel industry would correspond to 10·2 million tons of steel ingots. The finishing of these ingots provides facilities for additional production of billets at the main steel works so as to increase the overall availability of these billets from the level of 0·7 million tons in 1960-61 to about 1 million tons by 1965-66.

Having regard to the limitations of demand for the end-products planned for manufacture at Bhilai, e.g. rails and heavy structurals, and the time-lag to be normally allowed for reaching full output, it is envisaged that the production of finished steel in 1965-66 would be about 6·9 million tons though the ingot production might be of the order of 9·5 million tons.

20. *Coal.*—On the basis of the target for steel, thermal power and railways, which are major consumers of coal, the demand for coal by the end of the third plan is expected to be of the order of 97 million tons. A target of this magnitude will require production to be stepped up by 37 million tons over the target of 60 million tons set for the last year of the second plan. Though this target is not likely to be achieved in full by the end of the plan period, the necessary investment required for attaining production of this order will have been made by then. While in the second plan a sizeable contribution towards the additional production required could be obtained from existing workings, mostly in the private sector, the order of increase indicated in the Third Plan will call for the opening of a number of new mines in virgin areas and this will entail a great deal of effort and capital investment.

21. The most important objective of the coal programme in the Third Plan should be to ensure adequate supplies of coking coal required for the steel industry and of high grade non-coking coal required for railways and certain other industries. The exact requirements of the steel industry, the sources of supply and the steps to be taken to ensure their full availability are now being gone into by a Special Committee. In the meanwhile the additional requirements of coking coal for this industry during the third plan are

estimated roughly at 11 million tons, while the additional requirements of high grade non-coking coal will be of the order of 10 million tons. Additional production of coking coal and higher grades of non-coking coal will have to come mainly from the Jharia and Raniganj coalfields which are at present wholly in the private sector. During the second plan the private sector was allowed to raise an additional production of 10 million tons from existing workings and immediately contiguous areas. The contribution which the private sector can be expected to make during the third plan is under examination. After scrutiny of the expansion proposals put forward by the individual collieries in the private sector, an assessment will be made of the additional production that can be raised by them and a phased programme for achieving this production will be drawn up. For the present it has been tentatively assumed that about 16 million tons could be raised by the private sector.

22. The additional production required in regard to other grades of coal will have to come largely from outlying coalfields like Karanpura in Bihar and the coalfields in Madhya Pradesh, Orissa and Andhra Pradesh. The demand for inferior grades, which are used *inter alia* for brick-burning and domestic purposes, cannot be forecast with as much precision as that for the better grades which are required by the major consumers. Production of the inferior grades can, however, be stepped up comparatively cheaply and quickly as they are largely obtained from open quarries, and in their case it is transport rather than the ability to increase raisings which is likely to be the limiting factor.

23. Apart from the distribution of the additional production as between the public and private sectors, which is under examination, its distribution fieldwise and gradewise has also to be gone into in detail. For the present a provision of Rs. 138 crores has been made for the coal programme in the public sector. In addition some provision for raising coal is included in the allocation of Rs. 200 crores for the Bokaro steel plant and its ancillary facilities.

24. *Integrated Neiveli Lignite Project.*—The integrated Neiveli lignite project which is under implementation envisages mining annually 3.5 million tons of lignite for thermal power generation (250 MW), fertiliser production (70,000 tons of introgen) and production of carbonised briquettes (380,000 tons). During the third plan thermal power capacity is proposed to be increased to 400 MW, provision for which is made under the 'Power' sector. To meet the requirements of the expanded power plant mine output is to be increased from 3·5 million tons to 4·8 million tons and the necessary provision has been included in the Plan.

25. *Industrial Machinery.*—Foundry|forge capacity which is crucial for machinery projects is proposed to be established on a considerable scale in the public sector during the third plan. Capacity for 45,000 tons of steel castings, 38,000 tons of grey iron castings and about 70,000 tons of steel forgings will be created at the foundry/forge which is being set up at Ranchi. Further capacity will become available from foundries attached to the steel plants at Durgapur, Bhilai and Rourkela, to the Heavy Electrical Project, Bhopal, to the Mining Machinery Project, Durgapur and to Hindustan Machine Tools, while a steel foundry is under construction at the Chittaranjan Locomotive Works. The total capacity expected to be created in the public sector under these schemes is as follows:—

(figures in tons)

		grey iron castings	steel castings	steel forgings
1	foundry/forge project, Ranchi (III stage) .	38,000	45,000	69,700
2	Durgapur mining machinery plant (30,000 tons capacity for mining machinery) . .	11,000	6,000	7,000
3	Hindustan Machine Tools, Bangalore .	2,500	..	..
4	Chittaranjan Locomotive Works (Chittaranjan)	3,000	7,000	..
5	steel plants :			
	Durgapur Bhilai Rourkela	75,000	15,000	..
6	others (excluding foundries attached to the railway workshops)	6,000	..	..
7	total .	1,35,500	73,000	76,700

Castings and forgings will also be required by several other machinery projects included in the Third Plan, but a clear picture of these requirements and the best arrangements for meeting them, *i.e.* whether through captive foundry/forges or through independent units, or a combination of both is expected to emerge when the project reports are received.

26. The Heavy Machinery Plant, which is being set up near Ranchi will on its expansion to 80,000 tons output per year, be able to supply the bulk of the equipment required for adding to steel making capacity at the rate of about one million tons annually. The expanded mining machinery project at Durgapur is being designed for an annual output of 45,000 tons of equipment. The three Heavy Electrical Equipment Projects are designed to ensure from indigenous sources a wide range of electrical equipment sufficient to enable power generation to be increased at an annual rate of 2 million kW per year

from 1971 onwards. They will also produce heavy motors, rectifiers and control equipment. Manufacture of high pressure boilers for thermal power plants with an annual capacity of 19,000 tons is tied with the Electrical Equipment Projects.

27. Among other heavy engineering projects mention may be made of diversification at the Chittaranjan Locomotive Works which will enable the manufacture of electric locomotives to be undertaken there; the Plate and Vessel Works intended to provide pressure vessels and allied equipment for fertilizers and chemical plants; the heavy structural shop which is planned in the first phase to produce the components of heavy structurals for use by other structural fabricators and later to be expanded to produce heavy structural fabrications and cranes; the expansion of the Hindustan Shipyard at Visakhapatnam and construction of the second shipyard at Cochin jointly designed to step up the capacity for shipbuilding to 50,000—60,000 DWT by the end of the third plan.

28. In the field of machine tools, for which the demand is expected to expand from the current level of about Rs. 20 crores to about Rs. 50 crores by 1965-66, provision has been made in the public sector for the expansion of Hindustan Machine Tools, Jalahalli and Praga Tools, Hyderabad and for the establishment of a new Heavy Machine Tool Works. It is estimated that the combined output of these machine tool works, including also the contribution expected from the prototype factory, Ambernath of the Defence Ministry, will rise to about Rs. 11 crores. This will fall short of the Third Plan target of output for this industry which is at present envisaged at Rs. 30 crores per year and thus a sizeable gap will be left to be covered by the efforts of private enterprise. A suitable modification of the machine tools target may have to be made after consultation with the representatives of the industry on the likely contribution from private enterprise.

29. Mention may also be made of the proposal for the manufacture of control instruments and equipment in a new plant with an ultimate turnover of about Rs. 20 crores. This project is of fundamental importance in relation to future growth and covers new ground in a highly specialised field.

30. The manufacture of optical glass is of basic importance to the instruments industry. Its manufacture is envisaged during the third plan on the basis of the know-how and experience built up by the Central Glass and Ceramic Research Institute of the Council of Scientific and Industrial Research.

31. The total output of machinery in the public sector is expected in terms of value to amount to about Rs. 200 crores on the achievement of peak operation by the various projects to be constructed in the third plan period.

32. In view of the importance of designs development and project engineering it is intended that the nucleus organisations functioning under Hindustan Steel Limited and the Sindri Chemicals and Fertilizers should be rapidly expanded and similar agencies brought into being in an appropriate manner in connection with other machinery projects. Since performance guarantees are customary in this field, establishment of the necessary testing facilities will also become essential. A high voltage laboratory is being set up for the testing and design development of switchgear at Bhopal. These twin questions are to be further examined and proposals formulated, commensurate with the requirements.

33. *Mineral Oil.*—The demand for petroleum products has been rapidly increasing and by the end of the Third Plan is expected to rise to not less than 10 million tons as compared with 6.28 million tons in 1959. Except for a small production from the Digboi area in Assam, almost the whole of the requirements are being met by imports. The rapidly increasing demand for these products and the heavy drain on foreign exchange which it involves calls for concerted efforts to establish indigenous production of this very essential commodity. Oil India Limited, a joint venture of the Assam Oil Company and the Government of India, has been set up to exploit the reserves of oil proved in the Naharkatiya area and is expected to achieve an annual production of 2.75 million tons of crude oil. The major portion of the investments required for the production and transport of the crude oil will have been made during the second plan period. Production and piping of the crude is expected to start early in 1962 when the first refinery at Nunmati will have been completed and the pipeline to this refinery laid. The pipeline will in due course be extended to Barauni where a second refinery is being set up.

34. But even after Oil India Limited has achieved full production from the Naharkatiya area on the scale envisaged there will still be a large deficit in the indigenous production of crude. The allocations suggested for the Third Plan provide Rs. 115 crores for further exploration with a view to establishing additional production. In the case of areas in which reserves of oil are proved and have been brought to the stage when production can start the additional funds required for developing production and for refining capacity and

pipelines will be provided in accordance with the requirements as assessed from time to time.

35. Government have decided to invite foreign oil explorers to join the quest for oil in India subject to mutually acceptable terms. Offers have been received in response to this invitation and these are under examination.

A provision of Rs. 5 crores has been made for the Oil Distribution Organization in the public sector.

36. *Petroleum Refining.*—The State will be entering this field as a producer for the first time by early 1962. With the completion of the Nunmati and Barauni refineries, the share of the Government in the indigenous refining capacity will be 34 per cent of the total. Further expansion of refining capacity has to be visualised primarily in terms of covering the deficits under high speed diesel oil, (H.S.D.), kerosene, lubricating oils and petroleum coke. The position in regard to the overall demand and indigenous supplies of refined mineral oils is expected to be as follows when the two new public sector refineries achieve capacity output:—

(*figures in thousand tons*)

	expected production from all the refineries including Nunmati & Barauni refinery	estimated requirement by 1965	deficit	surplus
kerosene	1100	2200	1100	..
high speed diesel oil	1300	1800	500	..
motor spirit	1700	1300	..	400
aviation turbine fuel* (A.T.F.)	..	300	300	..
aviation spirit	100	60	..	40
furnace oil	1700	2200	500	..
light diesel oil (L.D.O.)	500	700	200	..
bitumen	400	700	300	..
jute batching oil (J.B.O.	100	100	..	..
vapourising oil mineral turpentine solvent oil paraffin wax } **	50	100	50	..
lubricants	100	500	400	..
total	7050	9960	3350	440

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* Present estimate of aviation turbine fuel included in kerosene production figures.

** Estimates not yet made of output of these minor products from new refineries.

37. In common with several other countries, India will face the problem of imbalance between output, of, and demand for, motor spirit. While exports have so far provided an outlet for surplus motor spirit, the problem of disposal externally is expected to become more and more difficult with the all-round expansion of refining capacity planned in neighbouring countries.

The solution to the imbalance problem will have to be found by the adoption of the following measures:—

(1) Technological measures to increase the production of middle distillates. This gives a very limited scope for varying the production pattern. The question of increasing the production of kerosene and H.S.D. by changing the specifications in flash point of these two products is being examined.

(2) Appropriate fiscal measures which will retard the growth of consumption of high speed diesel oil. This has been done to some extent this year.

(3) Promoting the use of mixed fuels which will reduce the demand for H.S.D. and at the same time increase the offtake of gasoline. Existing diesel vehicles could easily use mixed fuels containing upto 10 per cent gasoline without any changes being effected in them.

38. *Iron Ore.*—The requirements of iron ore for the steel and pig iron targets under consideration are estimated at about 20 million tons. The iron ore required for export to Japan including the quantity envisaged under the recent agreement signed in regard to the Bailadila project will amount to about 8 million tons. Allowing about 2 million tons for export to other countries, the total requirements for export would be of the order of 10 million tons. To meet these requirements the target for iron ore has been placed at 32 million tons.

39. The requirements of the Bhilai and Rourkela steel plants will be met from the mines that are being developed therefor and the investments required are included in the provision for the expansion of the capacity of the two steel plants. In the case of the Durgapur steel plant, it may become necessary to draw supplies of additional iron ore from the Kiriburu mines which are being developed to

meet the export commitments to Japan. In view of this the target for the Bailadila project which was originally envisaged at 4 million tons has been increased to 6 million tons. Provision has been made for this in the Plan. The requirements of the new steel plant at Bokaro will have to be met mainly from the Kiriburu area and the capacity of these mines will need to be increased by about 2 million tons. The capital investment required therefor will be met from the provision made for the Bokaro steel plant.

40. *Other Minerals.*—Other projects for which provision has been made in the Plan include:—

(1) exploration and exploitation of the copper deposits at Khetri and Daribo for a production of 10,000 tons of copper annually.

(2) development of the diamond deposits in Panna in Madhya Pradesh, and

(3) exploitation of pyrites deposits at Amjor, for the manufacture of sulphur/sulphuric acid from pyrites. Besides, provision has also been made for further expansion of the Geological Survey of India and the Indian Bureau of Mines with a view to intensification of surveys for mineral resources and detailed prospecting of those deposits which are to be developed in the public sector.

41. *Fertilizers.*—Planning is going forward with the object of securing by the end of the third plan production of nitrogenous fertilisers equivalent to 1 million tons in terms of nitrogen and of phosphatic fertilizers equivalent to 400-500,000 tons in terms of $P_2 O_5$ This compares with a current consumption of less than 60,000 tons of $P_2 O_5$ and an availability of 231,000 tons of nitrogen for consumption in 1959.

42. It is at present contemplated that in the public sector capacity for nitrogenous fertilizers will be expanded to about 8 lakh tons in terms of nitrogen and that the balance of 2 lakh tons required to reach the target of 1 million tons will be provided by the private sector. The private sector is also expected to provide most of the increase in capacity needed for phosphatic fertilisers.

43. The existing capacity for nitrogenous fertiliser is 144,000 tons in terms of nitrogen. This is almost wholly in the public sector. It is expected to increase to about 234,000 tons by the end of the second plan with the completion of the expansion of the Fertilisers and Chemicals Ltd. (FACT) and of Nangal Fertiliser Factory. Two

other factories are under construction at Rourkela and Neiveli and tenders for plant and equipment have been invited for another factory at Trombay. The setting up of factories at Durgapur, Naharkatiya, Kothagudium in Andhra and at a site in Rajasthan has been approved and sites for factories in Uttar Pradesh, Madhya Pradesh, Mysore and Gujerat are under consideration. One or two more additional factories will be needed to achieve the target of 1 million tons. High priority is being assigned to investments in this field in the next 3 years.

44. The tentatively accepted end-products pattern for nitrogen and complex fertilisers is given below:

end-product	(1965-66) thousand tons of nitrogen
ammonium sulphate	232.0
ammonium sulphate-nitrate	211.0
nitrochalk and nitro-limestone	160.0
nitrophosphate complex fertilizer	74.0
urea	206.0
ammonium phosphate	67.0
ammonium chloride	50.0
total	1000.0

It will be seen from the above that a significant portion of the additional output of nitrogen is being planned in the form of complex and/or compound fertilizers so that a part of the phosphate ($P_2 O_5$) requirements will also be met in this manner. This pattern of production is expected to keep within reasonable limits the dependence on sulphur and gypsum.

45. *Basic Chemicals, Intermediates & Finished Products.*— Developments in the field of fertilizers already discussed really fall under this head, since a wide range of basic chemicals are produced and finally transformed into fertilizers *e.g.* sulphuric acid, ammonia, nitric acid and phosphuric acid. Some of the end-products of the fertilizer industry have also other uses as chemical raw materials *e.g.* urea for the manufacture of ureaformaldehyde resins.

46. The recovery of organic hydrocarbons e.g. benezene, toluene, naphthalene, anthracene and xylene is expected to be stepped up in the public sector *pari passu* with the increased coking of coal at the steel plants. A major scheme visualised as a link between these products at one end and the dyestuffs, plastics and drugs manufacturing plants at the other end is the Basic Chemicals & Intermediates (BCI) project proposed to be located in the Aptakharpada area

near Panvel, Maharashtra State. The B.C.I. project as the supplier of intermediate chemicals is firmly linked with the synthetic drugs project proposed for establishment near Sanatnagar (Hyderabad). As a result of these two projects, valuable technical know-how in a virgin field is expected to become available during the third plan period. The manufacturing programme under the B.C.I. project covers the manufacture of 40 organic intermediates with an aggregate output of 25,160 tons. Provision is also being made for further expansion in due course by about 10,000 tons. Several basic inorganic chemicals are consumed in the manufacturing operations which include *inter alia* chlorination, sulphonation, alkalene fusion, nitration, reduction and oxidation. The manufacture of some of these inorganic chemicals is also envisaged in captive plants within the project.

47. The programme for the manufacture of sulphur from pyrites represents a major effort at tackling the sulphur problem of the economy. With the provision made for this project an annual capacity of 30,000 tons of sulphur is expected to be installed. The mining of the pyrites required for this will simultaneously give rise to the production of "fines" which are expected to find an outlet in the manufacture of sulphuric acid.

48. *Essential Drugs & Surgical Instruments.*—The schemes expected to be implemented in this important field are:—

(1) Synthetic Drugs Project at Sanatnagar, Andhra Pradesh covering the manufacture of sulpha drugs, vitamins, phenacetin, other synthetic drugs (INH, luminal, chloroquin etc.) and Intermediates (including ASC at 1500 tons per year).

(2) Antibiotics Plant near Rishikesh (Uttar Pradesh) covering the manufacture of penicillin, streptomycin, chloro and other tetracyclins, new antibiotics.

(3) Phyto-chemicals Plant in Kerala, covering the manufacture of caffeine, ephedrine, digitalis glycosides/ Lanatazides, Ergot alkaloids, atropine, scopolemine, reserpine, papain, vitamin P.

(4) Surgical Instruments Plant near Guindy, Madras, for the manufacture of 25 groups of instruments.

On the implementation of these schemes, the availability of essential drugs at reasonable prices is expected to be ensured.

49. *Industrial Projects of State Governments.*—A number of schemes falling under this head are spill-over schemes from the

Second Plan, *e.g.* expansion of the Mysore Iron and Steel Works and of the Andhra Paper Mills, doubling of the Durgapur Coke Ovens and piping of gas from Durgapur to Calcutta. New projects so far accepted for inclusion under this head are: the expansion of the capacity of the Nepa Mills from 30,000 to 60,000 tons per year and of the Praga Tools. Though the fertiliser factory at Kothagudiam (Andhra Pradesh) has been visualised as a State Government project, the provision therefor has for the present been included in the central sector.

50. Apart from the cost of the above projects, provision will have to be found within the allocation made for State Governments' schemes in the Third Plan, for the funds needed to assist State Financial Corporations and for the financing of "Industrial Development Areas". The latter are intended to contribute to the growth of industries in regions which are at present relatively backward industrially. The idea is to acquire in industrially backward regions suitable tracts of land at focal points where good communications exist or can be easily developed, develop factory sites thereon, provide the basic facilities like power, water, sewage etc. and then offer them for sale or on long lease to prospective enterprisers.

51. A clear picture of these various projects and programmes is expected to emerge in the course of discussions with the State Governments about their Third Five-Year Plans.

52. *Miscellaneous provisions within the overall allocation of Rs. 1500 crores.*—The Plan provides for the allocation of Rs. 20 crores for the advance of loans to the Industrial Finance Corporation and the Industrial Credit and Investment Corporation. In addition, lumpsum allocations have been made for plantation industries, for townships for the industrial projects of the Central Government (Rs. 30 crores), and for the activities of the National Industrial Development Corporation (Rs. 10 crores), the National Productivity Council, the Indian Standards Institution and measures for the extension of the Metric System (Rs. 10 crores). These provisional allocations will have to be gone into carefully in relation to exact requirements before the Plan is finalised.

PRIVATE SECTOR PROGRAMMES

53. With a view to formulating capacity and production targets for the Third Plan the Planning Commission has during the past eight months had discussions with representatives of various industries, and further discussions are scheduled to be held in the near future. The Commission has also had before it the recommendations so far

made by Development Councils and by other agencies who have been requested to consider targets for specific industries. Discussions have also been held with the premier industrial and commercial organisations of the country like the Federation of Indian Chambers of Commerce and Industry, the Associated Chamber of Commerce and the All-India Manufacturers Organisation and representatives of the Institutional Financing Agencies on wider issues such as the financial resources likely to be available to the private sector for investment during the third plan.

54. The statement at the end of this chapter (Annexure II last two columns) shows the targets tentatively proposed for various industries in the Third Plan. At this stage these targets have somewhat varying degrees of firmness since the studies of some industries have not yet been completed. The statement shows the overall targets for both the public and private sectors. Read with the preceding section on public sector programmes, Annexure II will give an idea of the role in different fields of industry assigned to private enterprise.

55. The sources of supply of investible funds for financing gross fixed assets formation in the private sector during the second plan and anticipations in this regard for the Third Plan are broadly given in the following table:

Sources of supply of funds for industrial programmes of the private sector

(rupees in crores)

		second plan period	third plan period
1	from institutional agencies	85	130
2	direct loans/participation by Central and State Governments	20	10
3	new issues	120	200
4	internal resources (net of repayment liabilities)	400	610
	direct foreign credit/participation in capital	200	300
	total	825	1250

56. Exclusively of the expenditure likely to be incurred on replacement and modernisation programmes, the net investment under manufacturing industries and coal mining during the third plan period is visualised at Rs. 1050 crores. The magnitude of the investment required for the backlog of modernisation programmes of the cotton textiles, jute textiles and sugar industry is still under examination.

Salient features of the development programmes envisaged for accomplishment by private enterprise in the more important fields are discussed below:

ENGINEERING INDUSTRIES—HEAVY AND LIGHT

57. Large-scale developments are proposed in this sector in view of the prospects of increased supplies of pig iron and steel, the emphasis on machinery manufacture and the scope in many instances for wide employment opportunities in relation to investments. Targets have been proposed for an extensive range of manufactured items *e.g.*, agricultural machinery and construction equipment like tractors, diesel engines, road rollers, dumpers and shovels; power distribution and measuring equipment like transformers (below 33 K.V.), electric cables and wires and house service meters; rail and road transport items like locomotives, wagons, passenger coaches, commercial vehicles (buses and trucks); complete plants for the setting of new units for the sugar, paper, cement and textile industries and certain chemical industries, steam-raising equipment (boilers) and machine tools; consumable stores like welding electrodes and durable consumer goods like passenger cars, sewing machines, bicycles and electric fans. These targets do not, however, cover all lines of expansion.

58. The production of new items in this field, of which various types of machinery are the most important, is expected to be developed both in independent plants specially established for the purpose like the A.V.B. (Associated Cements—Vickers—Babcock Wilcox) plant at Durgapur for the manufacture of equipment for the cement industry and high pressure boilers and also by the diversification of output of engineering workshops already in operation or currently under establishment. In the latter case, the investment required for developing the production of new items of machinery will be substantially lower than would otherwise be the case. This is the explanation of the apparently low estimates of investments *vis-a-vis* estimates of output in certain industries. In some of the manufacturing programmes, there is also the practice of entrusting the production of certain components to ancillaries or even major establishments with surplus capacities. In the circumstance, the normal relationships between output and investment cannot be applied.

59. It is highly desirable that the targets set for 1965-66 in respect of the machinery items should be achieved as quickly as possible and on the basis of the maximum indigenous content specified in each case. The consortium approach for manufacture and supply of complete plants for factories by groups of firms joined together—which

has been adopted for the manufacture of sugar mill machinery, may facilitate a speedy advance in other fields also.

60. The physical content of the proposed targets is explained below in the case of some of the machinery programmes:—

item	standard size of plant (tons per day)	target for 1965-66		indigenous content (%)
		no. of plants	value of plants excluding electricals (Rs. crores)	
cement mill machinery	500	6 to 7	4·0 to 5·0	90
paper mill machinery :				
(a) large plant	50	4	6·5 to 7·0	70
(b) small plant	10	4		
sugar mill machinery	1000 to 1200 of sugar cane	14	10·0	85
cotton textile mill machinery				
(a) spinning mill	12,000 spindles		20·0	85
(b) composite mill	12,000 spindles & 300 looms			
sulphuric acid plant	50	10	1·3	80

61. A reference must be made to the targets for automobiles in view of the large-scale investments involved in building up new capacity and the demands on foreign exchange for sustaining production. The targets tentatively proposed for passenger cars, commercial vehicles, jeeps, motor cycles and scooters are:

	estimated production (1960-61)	target for 1965-66
passenger cars (nos.)	20,000	30,000
commercial vehicles (nos.)	28,000	60,000
jeeps & station wagons	5,500	10,000
motor cycles, scooters and three wheelers	16,000	48,000

The target for commercial vehicles includes 4,000 units expected to be supplied by the Ordnance establishments.

The expansion of capacity for the production of automobiles envisages coordinated developments by the vehicle producers and the ancillary industries broadly on the lines of the recommendations made by the *Ad hoc* Committee on Automobiles industry in its report of March, 1960.

62. To reach the targets of production of automobiles without excessive and continued strain on foreign exchange resources, it will be necessary to achieve at least 85 per cent indigenous content by

1965-66 as compared with less than 60 per cent at the start of the Third Plan. Investment designed to increase the indigenous content has to take precedence over investment for establishing new units or expanding existing capacity. Priority has also to be given to the production of commercial vehicles.

METALLURGICAL INDUSTRIES

63. *Iron and Steel.*—Compared to the Second Five Year Plan, the share of the main producers of iron and steel in further expansion is likely to be relatively small. The principal contribution to be made by private enterprises will be the expansion of production of scrap-based steel billets in electric furnaces and the production of pig iron in low shaft blast furnaces. The additional output to be obtained in this manner by the end of the Third Plan is placed at 0·2 million tons of steel ingots and an equal quantity of pig iron.

64. In the field of alloy and tool steels, the target for the private sector is visualised at 70,000 tons by 1965-66. The nature of the products to be manufactured has to be co-ordinated with the pattern of production envisaged in the new alloy, tool and special steels plant of the public sector. Early decisions in this regard are required.

65. *Aluminium.*—In the field of non-ferrous metals, aluminium is expected to continue to retain its dominant position in the Third Plan. The target of 82,500 tons by 1965-66 is expected to be achieved as a result of the following projects already recommended for implementation.

(1) Expansion of Indian Aluminium Company's plant at Hirakud by 10,000 tons per annum.

(2) Establishment of a smelter at Rihand of 20,000 tons annual capacity.

(3) Establishment of a smelter at Koyna of 20,000 tons annual capacity.

(4) Establishment of a smelter near Salem of 10,000 tons annual capacity.

(5) Expansion of the plant of the Aluminium Corporation of India by 5000 tons per year.

66. *Zinc.*—Production of zinc for the first time in India is expected to be achieved by the middle of the Third Plan period with the commissioning of the zinc smelter based on zinc concentrates from

the Zawar mines in Rajasthan. The annual capacity of the plant will be 15,000 tons. In step with the increase in the mining of the lead-zinc ores for maintaining the zinc smelter in full operation, additional output of lead is envisaged. The zinc smelter is also being equipped to operate a by-product sulphuric acid plant based on the smelter gases which will be used for the manufacture of phosphatic fertilizers.

67. *Copper.*—The production of electrolytic copper will commence in the early years of the Third Plan with the commissioning of the unit at Ghatsila by the Indian Copper Corporation.

68. *Heavy Chemicals and Fertilizers.*—Compared to the Second Five Year Plan, private enterprise is expected to play a much larger part in the production of nitrogenous fertilizers and will also, as before, be mainly responsible for the further development of phosphatic fertilizers (*vide* paragraph 41).

69. About 65 per cent of the production of sulphuric acid is expected to be consumed by the fertilizer industry. Within the overall target of 1·5 million tons set for sulphuric acid, the share of the private sector is envisaged at between 85 to 90 per cent.

70. The additional production required in order to reach the target for caustic soda is expected to be based on both the electrolytic and the chemical processes, but a much bigger increase in the output by the chemical process is envisaged as compared with the current levels.

71. The expansion of soda ash production is expected also to cover the production of dense soda ash. The output of this grade of soda ash, which is required almost entirely by the Glass Industry, is placed at about 160,000 tons.

72. In fixing the target for industrial explosives the additional demands for the large-scale mining developments envisaged in the Third Plan have been kept in view. The additional production is expected to be secured by the expansion of the unit near Gumia which went into production in 1959.

73. Major developments are envisaged in the organic chemical industry based on supplies of intermediates from the Basic Chemicals and Intermediates Plant in the public sector *e.g.*, production of rubber chemicals, manufacture of A.S.C. and sulpha drugs from acetanilide and of phenol-formaldehyde from supplies of phenol from the Government Intermediates Plant. Production of citric acid and oxalic acid is also envisaged for the first time. Large scale expansion of acetic acid, acetone, formaldehyde and production of

organic esters required as solvents *e.g.*, butyl acetate and phathalic esters, will further strengthen the organic chemical industry. The production of plastic monomers like vinyl chlorde, styrene and of high ploymers like synthetic rubber, currently under development, may also be mentioned in this connection. All these new products are expected to assist in bringing down the requirements of foreign exchange for maintenance in some of the major industries established in the post-war period.

74. *Cement.*—The capacity target for cement has been fixed at 15·0 million tons by 1965-66 and represent a 50 per cent increase over the level expected to be reached by the end of the Second Plan. The progress of this industry as well as other established industries like paper and sugar is expected to be linked with supplies of indigenous machinery from about the middle of the Third Five Year Plan.

75. *Consumer Goods Industries.*—Paper, including newsprint, cotton textiles, rayon, sugar and vegetable oils are the major items for which specific targets have been proposed for the Third Plan. In the case of cotton textiles, the target of 5800 million yards for the organised mills is linked with the production level of 3500 million yards envisaged for the decentralised sector (handloom, powerloom and Khadi). The overall target for cloth production is derived from the domestic requirements (including additions to stocks) of 8,450 millions yards and an export target of 850 million yards. Under paper and paperboard, expansion of capacity by about 128 per cent (from 360,000 tons to 820,000) and under newsprint, a four fold expansion have been proposed in step with the anticipated growth of demand under the Third Plan.

76. On the basis of the foreign exchange commitments so far allowed, the rayon and staple fibre industries are expected to achieve an installed capacity of 140 million lbs. by 1962-63. Expansion of these industries is envisaged upto 215.0 million lbs. in the Third Plan. Considerable importance has been attached to the phasing of investments in these industries preference being given to the expansion of wood pulp manufacture over further expansion of output of synthetic filament.

77. In the case of vegetable oils, the programmes are based on stepping up the output of cotton seed oil from 37,000 tons to 100,000 tons. The success of this programme will depend upon a co-ordinated effort to absorb the cottonseed cake as animal feed and cotton linters as industrial raw material. A four fold expansion of oil production by solvent extraction of oil-cakes to 160,000 tons is also envisaged. The possibility of further expansion of production of vegetable oils

is largely dependent on the programme for the production of major oilseeds, but some increase in output may be obtainable by devoting attention to the extraction of oil from rice bran.

78. The significance of rapid industrialisation initiated as the cornerstone of future economic growth under the Second Five-Year Plan rests much more upon diversification of industry and its vertical growth rather than expansions of capacity in the traditional lines of manufacture, apart from iron and steel. In the last four years, valuable gains have been registered by way of manufacture of new products for the first time, adoption of new techniques and processes and acquisition of the latest skills and knowhow. The industrial economy has been increasingly oriented towards the use of indigenous raw materials, natural and processed. Programmes for the public and private sectors under the Third Plan, which have been briefly outlined above, envisage further intensification of efforts along these lines coupled with emphasis on machine building and related activities so that in respect of the crucial factors of industrial growth, substantial progress is achieved to facilitate a quicker rate of expansion in later Plan periods. The general index of industrial production, which is one of the conventional indicators of progress, is expected to reach the level of 362 (1950-51 = 100) in 1965-66 as against 221 estimated for 1960-61 and 139 for the last year of the First Five Year Plan.

ANNEXURE I

Projects under Industry and Minerals in the Public Sector

A. *Projects under execution and carried over from the Second Plan*

(i) *Industry*:

Completion of the three steel plants (Bhilai, Rourkela and Durgapur).

Rourkela Fertilizer Factory.

Heavy Machinery Plant at Hatia, Ranchi.

Foundry Forge Shop at Hatia, Ranchi.

Mining Machinery Plant at Durgapur.

Heavy Electrical project, Bhopal.

Drug Projects.—Synthetic Drugs Plant at Sanatnagar; Antibiotics plant near Rishikesh; Phyto-chemicals in Kerala; Surgical Instruments Plant near Guindy.

Organic Intermediates Plant near Panvel.

Expansion of Hindustan Antibiotics.

Trombay Fertilizer Project.

Naharkatiya Fertilizer Project.

Andhra Fertilizer Project near Kothagudium.

(ii) *Coal*:

Coal Programmes of the National Coal Development Corporation.

Washeries at Bhojudih and Patardih.

(iii) *Minerals*:

Neiveli Lignite Project.

(a) Fertilizer Plant.

(b) Briquetting and Carbonisation Plant.

(c) Thermal Power Plant.

Kiriburu Iron Ore Project.

(iv) *Oil*:

Oil India—Crude Oil pipeline.
Refineries at Nunmati and Barauni.

B. *New Projects for which external credits are already assured.*

Expansion of Heavy Machinery Plant.
Expansion of Mining Machinery Plant.
Second and Third Heavy Electrical Projects.
Expansion of Foundry Forge at Hatia.
Expansion of Bhilai Steel Works.
Heavy Machine Tools Project.
Precision Instruments Project.
Opthalmic Glass Project.
Raw Film Project, Nilgiris.
Project for the manufacture of watches.

C. *New Projects included in the Plan for which foreign credits have not yet been arranged.*

(i) *Steel*:

(a) Expansion of Rourkela Steel Plant.
(b) Expansion of Durgapur Steel Plant.
(c) Alloy and Tool Steels Plant.
(d) Bokaro Steel Plant.
(e) Ancillary facilities (Coal, other mineral raw materials, power and transport) linked with (d) above.

(ii) *Other Industries*:

Heavy Structurals Project.
Heavy Plate and Vessel Works.
Expansion of Hindustan Machine Tools, Jalahalli.
Expansion of Heavy Electrical Project, Bhopal—Second and Third Phases.
Additional capacity for fertilizers.
Expansion of Visakhapatnam Shipyard and construction of Dry Dock.
Security Paper Mill at Hosingabad.
Expansion of Hindustan Cables, Rupnarainpur.
Second Shipyard at Cochin.

(iii) *Coal*:

New Programmes of the National Coal Development Corporation.

Expansion of Singareni Collieries.

Central Workshop for Repairs and Maintenance.

Central Ropeway schemes.

Additional Washing capacity for coking coal.

Expansion of Neiveli mine output.

(iv) *Other Minerals*:

Project for Sulphur from Pyrites.

Bailadila iron ore project.

Exploitation of Sikkim Copper deposits.

Exploitation of Khetri and Daribo Copper deposits.

Exploitation of Panna diamonds.

Beneficiation Programmes for Manganese Ores.

Expansion of Geological Survey of India.

Expansion of Indian Bureau of Mines.

(v) *Oil*:

Oil exploration and distribution programmes.

(vi) *Other Schemes*.

State Government projects *e.g.*, expansion of Mysore Iron & Steel Works, Praga Tools, Nepa Mills, Durgapur Coke Ovens and expansion of Kolar Gold Mining undertaking.

Loan assistance to Plantation Industries.

Introduction of Metric System.

Programmes of National Industrial Development Corporation, National Productivity Council and Indian Standards Institution.

Loans to Institutional Financing Corporations.

Industrial Townships.

D. *Projects on which preparatory work should continue with a view to decisions in due course.*

(i) *Industry*:

Heavy Compressors and Pumps Project.

Basic refractories project.

Ball and Roller Bearings Project.
Additional capacity for Machine Tools.
Second Heavy Structurals Project.
Second Plate and Vessel Works.
Marine Diesel Engine Project.

(ii) *Minerals*:

Products pipelines for mineral oils.
Lubricating oils project.
Coal Washeries for non-coking coal.
Low temperature carbonisation plants for soft coke.
Neiveli Lignite high temperature carbonisation plant and connected facilities for pig iron production.

E. *Projects of a contingent nature.*

New refinery for fresh oil findings.
Crude Oil pipelines.

Government participation in Indo-Stanvac project for oil Exploration and in Oil India's programmes for Expansion of Oil Production.

Piping of Naharkatiya natural gas.

ANNEXURE II

Production of major organised industries and minerals
Progress and Targets

serial no.	name of industry	unit	1950-51 production	1955-56 production	1960-61		targets for 1965-66	
					estimated capacity	estimated production	capacity	production
1	2	3	4	5	6	7	8	9
	A. metallurgical industries							
1	*iron and steel*							
	i. steel ingots . . .	mill. tons	1·4* (a)	1·7* (a)	6·0	3·5	10·2	9·5
	ii. finished steel	,,	0·98	1·3	4·5	2·6	7·5	6·9
	iii. pig iron for sale	,,	0·35	0·38	0·9	0·9	..	1·5
	iv. alloy, tool & special steels (finished)	' 000 tons	..	..	40	40	200	200
	v. grey iron castings . . .	mill. tons	..	..	n.a.	n.a.	1·2	1·2
	vi. steel castings	,,	..	..	0·10	0·05	0·20	0·20
	vii. steel forgings	' 000 tons	..	..	60	35	200	200
2	ferro-manganese	,,	n.a.	n.a.	150	100	220	200
3	ferro-silicon	,,	..	..	5	6	40	40
4	aluminium	,,	3·68	7·3	17·5	17·0	82·5	75·0
5	copper (fire refined & electrolytic) .	,,	..	7·3 (a)	7·2	7·9	18·4	18·4

*inclusive of metal for castings
(a) relates to calendar year

serial no.	name of industry		1950-51 production	1955-56 production	1960-61		targets for 1965-66	
					estimated capacity	estimated production	capacity	production
;	lead	'000 tons	..	2·2(a)	6·0	3·5	8·5	8·0
7	zinc	,,	..	..	nil	nil	15	15
			B. mechanical engineering industries					
8	*industrial machinery(b)*							
	i. cotton textile	Rs. crores	n.a.	4·0	10·0	9·0	22·0	20·0
	ii. cement	,,	..	0·34	1·1	0·8	4·5	4·5 to 5·0
	iii. sugar	,,	..	0·19	10·5	4·4	11·0 to 12·0	10·0
	iv. paper	,,	..	..	0·7	..	8·5	6·5 to 7·0
	v. dairy	,,	..	..	0·25	neg	2·5	2·5
	vi. industrial boilers . . .	,,	..	..	3·7	0·6	29·0	25·0
	vii. cranes	'000 tons	..	..	2·5	1·5	60	60
	viii. machine tools	Rs. crores	0·29	0·72(a)	7·0	5·5	30·0	30·0
	ix. heavy machinery building (steel & chemical machinery) . .	'000 tons	..	..	..	..	80	(c)
	x. coal mining machinery . .	..	..	..	..	..	45	30

	xi. heavy plate and vessel works (pressure vessels, heat exchangers and other types of chemical plant and equipment)	,,	..	..	..	..	30—40	30
9	structural fabrication (including heavy structural shop)	'000 tons	..	90	500	250	1100	1000
10	precision instruments—industrial and scientific	Rs. crores	..	..	0·7	0·7	23	12
11	surgical instruments	mill. pieces	..	..	..	..	2.5	2.5
12	watches	'000 nos.	..	..	..	..	360	240
13	*railway rolling stock*							
	i. locomotives							
	steam	nos.	n.a.	500†	300	295	300	1175†
	diesel	,,	..	..	..	..	100	434†
	electric	,,	..	..	..	..	60	232†
	ii. wagons (in terms of 4-wheelers)	,,	2924	41966†	26,000	20,000	33,500	109.866†
	iii. passenger coaches	,,	479	4384†	1300	1210	1420	7837†
14	*automobile and ancillary ndustrie*							
	passenger cars	'000 nos.	16·5	25	20	20	30	30
	ii. commercial vehicles	,,			28	28	60	60
	iii. 'eeps & station wagons	,,			5·5	5·5	10	10

(a) relates to calendar year

(b) except in the case of cotton textile machinery, the capacity and production under this head are related to the demands for original equipment

(c) actual production will be linked by and large, with the programme for expansion of steel capacity

§ relates to five-year period

serial no.	name of industry	unit	1950-51 production	1955-56 production	1960-61		targets for 1965-66	
					estimated capacity	estimated production	capacity	production
	iv. automobile ancillaries including trailors	'000 nos.	..	..	0·7	n.a.	2·5	2·5
	v. motor cycles & scooters	,,	..	1·5	24	16	48 to 60	50
15	ball & roller bearings	mill. nos.	0·08	0·9	1·6	2·4	8·0	12·0(d)
16	*earth moving equipment*							
	i. crawler tractors	nos.	..	..	..	..	600	500
	ii. dumpers & scrapers	,,	..	..	..	..	600	500
	iii. shovels	,,	..	..	..	..	125	100
17	road rollers	,,	..	..	800	350	800	700
18	*agricultural implements and machinery*							
	i. power driven pumps	'000 nos.	34	37	184	86	184	150
	ii. diesel engines	,,	5·5	10	62	33	72	66
	iii. tractors	,,	..	..	7·5	2·0	12·0	10·0
19	bicycles	mill. nos.	0·10	0·51	2·2	1.05	2·2	2·0(e)
20	sewing machines	'000 nos.	33	111	288	300	500	450(f)
21	welding electrodes	mill. rft.	..	..	600	350	1080	900
22	shipbuilding (expansion of Hindustan Shipyard, dry dock and second ship-yard)	'000 GRT.	..	50†	20	20	50 to 60 (DWT)	50 to 60 (DWT)

	C. electrical engineering industries							
23	electric transformers (below 33kv)	mill. kva.	0·18	0·63	2·2	1·35	4·0	3·5
24	electric motors (200 h.p.& below)	mill. h.p.	0·10	0·27	1·25	0·8	3·0*	2·5*
25	*electric cables and wires*							
	i. A.C.S.R.	'000 tons	1·7	8·7	28	18	55	44
	ii. V. I. R. & plastic coated	mill. core yds.	39·4	86·9	500	250	800	600
	iii. paper insulated	miles	..	..	1000	750	4500	4000
	iv. dry core cables	miles	..	525	470	470	2000 to 2500	2000
	v. coaxial cables	miles	..	..	300	300	300	300
26	electric fans	mill. nos.	0·19	0·29	2·2	0·9	2·8	2·5
27	house service meters	mill. nos.	..	0·25(a)	0·6	0·45	2·5	2·1
	D. chemical and allied industries							
28	*fertilisers*							
	i nitrogenous (in terms of nitrogen)	'000 tons	9	79	234	210	1000	1000
	ii phosphatic (in terms of P_2O_5)	,,	9	12	82	70	500	400
29	*heavy chemicals*							
	i. sulphuric acid	,,	99	164	521	400	1500-	1250

(a) relates to calendar year
(d) by working the capacity on three shifts
(e) additional 0·5 million bicycles are expected to be produced in the small scale sector
(f) additional 150,000 sewing machines will be produced in the small-scale sector

*these figures are for 300 h.p. and below
†relates to the five-year period

serial no.	name of industry	unit	1950-51 production	1955-56 production	1960-61		targets for 1965-66	
					estimated capacity	estimated production	capacity	production
	ii. soda ash	'000 tons	45	81	304	240	530	450
	iii. caustic soda	,,	11	35	150	125	400	340
	iv. calcium carbide	,,	..	3(a)	28	20	67	60
	v. sodium hydrosulphite	,,	..	..	4	3·5	12	10
	vi. hydrogen peroxide	,,	..	..	3	2	9·5	8
30	*miscellaneous chemical products*							
	i. carbon black	,,	..	..	..	..	30	30
	ii. *industrial explosives*							
	a. blasting explosives	,,	..	..	5	5	20	20
	b. safety fuses	mill. coils	..	..	8·9	7·0	25·0	25·0
	c. detonators	mill. nos.	..	..	..	..	80	80
	iii. rubber chemicals	'000 tons	..	..	2	n.a.	3	3
31	dyestuffs	mill. lbs.	..	4·0	19·2	11·5	22·4	18·0
32	*drugs and pharmaceuticals*							
	i. sulpha drugs	tons	..	83(a)	393	150	1000	1000
	ii. penicillin	mill·meg units	..	6·6	45	40	205	120
	iii. streptomycin	tons	..	..	..	..	150	150
	iv. P A S	,,	..	40(a)	126	100	400	400

v. anti-dysentry drugs	,,	..	6·0(a)	74	30	75	75
vi. I.N.H.	,,	..	1·0(a)	33	30	100	100
vii. organic intermediates	,,	..	..	..	..	24000	24000
viii. phyto-chemicals	,,	..	..	..	..	76·40	76·40
ix. insecticides, D.D.T.	,,	..	284	2800	2800	2800	2800
33 plastics (polythylene P.V.C. polysterene and others)	'000 tons	..	0·7	19·2	11·5	85·0	74·0
34 i. Soap	,,	106	102 (organised sector only)	254 (organised sector only)	380	254 (organised sector only)	500
ii. synthetic detergents	,,	..	..	7·2	2·0	12·5	10·0
35 raw films cinematographic etc.	mill. sq. meters	..	..	..	..	10·0	
36 *rubber manufactures*							
i. automobile tyres	mill. nos.	..	0·9	1·76	1·5	3·7	3·0
ii. bicycle tyres	,,	..	5·78	16·9	14·0	38·6	31·0
37 synthetic rubber	'000 tons	..	..	..	..	30	30
38 i. paper and paper-board	,,	114	187	363	320	820	700
ii. newsprint	,,	..	4·2	30	28	120	120
iii. security paper	tons	..	..	..	..	1500	1500
39 cement	mill.tons	2·7	4·6	10·0	8·8	15·0	13·0
40 refractories	,,	..	0·28	0·87	0·6	2·0	1·6
ctrc porcelain H.T. and L. T. insulators)	'000 tons	..	4·3		8·4	30	24

(a) relates to calendar year

rial no.	name of industry	unit	1950-51 production	1955-56 production	1960-61		targets for 1965-66	
					estimated capacity	estimated production	capacity	production
42	glass and glassware (including opthalmic glass)	'000 tons	92·0	125	457	240	615	440
43	petroleum products	mill. tons	..	3·6	5·3 (crude oil)	4·6	8·0 (crude oil)	7·4
44	power and industrial alcohol	mill. gallons	8·5	15·6(a)	45	25	60	50
45	*industrial gases*							
	i. oxygen	mill. cft.	..	..	1000	700	2300	1650
	ii. acetylene	,,	..	..	156	100 to 110	250	200
		E. textile industries						
46	*cotton*							
	i. yarn	mill. lbs.	1179	1640	2100	1900	2250	2250
	ii. cloth (mill)	mill. yds.	3720	5102	5300	5000	5800	5800
47	jute	'000 tons	892	1150	1200	1100	1200	1100
48	*rayon and staple fibre*							
	i. rayon filament	mill. lbs.	0·4	16·0	52·3	47·0	140·0	140·0
	ii. staple fibre	,,	..	14·0	48·0	42·0	75·0	75·0
	iii. chemical pulp	'000 tons	..	..	..	..	100·0	90·0
49	*woollen manufactures*	mill. lbs.	18·0	..	..	..	..	..
	i. woollen and worsted yarn	mill. lbs.		21·7	67	34	67	52

	(ii) woollen cloth	mill. yds.	..	15·0	48	23	48	35
	(iii) wool tops	mill. lbs.	..	..	10	n.a.	31·5	31·5
			F. food industries.					
50	salt	mill. tons	2·7	3·0	3·9	3·55	6·5	5·4
51	sugar	,,	1·12	1·86	2·28	2·25	3·0	3·0
52	*vegetable oils*							
	(*a*) solvent extraction of oilcakes	'000 tons	..	..	936 (cake)	36 (oil)	2000 (cake)	160 (oil)
	(*b*) cottonseed oil	,,	..	..	415 (seed)	37 (oil)	850 (seed)	100 (oil)
53	Vanaspati	,,	153	276	434	350	550	500
			G. minerals					
54	coal	mill. tons	32 (a)	38 (a)	..	53	..	97
55	iron ore	,,	3·0 (a)	4·7 (a)	..	12	..	32

N. B.—Capacity for engineering industries is estimated on the basis of double shift operation.

(a) Refers to calendar year.

CHAPTER XII

TRANSPORT AND COMMUNICATIONS

THE experience of the past few years has underlined the importance of transportation in economic planning. Towards the end of the first plan and in the early stages of second plan serious congestion arose both on the railways and at the ports and though there has since been a marked improvement in the transport situation, the railways are still under some strain. In view of the prospect of further rapid industrialisation this is likely to continue throughout the period of the third plan.

2. Whereas in the first plan the main task in the field of transport was one of rehabilitation, in the second plan attention was given to creating additional transport capacity with special regard to the requirements arising from the development of basic industries like steel, coal and cement. The programmes in the Third Plan are once again being formulated with special regard to the requirements of industrial development during the plan period. It is proposed to allot for the present Rs. 1450 crores for the programmes relating to transport and communications in the public sector. Of this amount Rs. 890 crores will be provided for the railways, Rs. 268 crores for roads and road transport, Rs. 152 crores for shipping, ports, inland water transport and lighthouses, Rs. 55 crores for civil air transport, Rs. 68 crores for posts and telegraphs, Rs. 5 crores for other communications. Rs. 5 crores for tourism, and Rs. 7 crores for broadcasting. It is recognised that the allotments proposed for some of these programmes in the Third Plan may not be adequate. Additional provision would be desirable particularly for the programmes relating to roads, shipping, and posts and telegraphs. It is proposed to consider the possibility of making additional allocations in these fields in due course as circumstances permit.

3. The Planning Commission for some time past has been considering in consultation with the Ministries concerned problems relating to the coordination of different means of transport, especially rail and road transport. The Commission has set up a committee to go into these questions and to make recommendations on the measures required to secure the necessary coordination between different

means of transport in the light of the long term considerations which should guide their future development. These recommendations are awaited.

RAILWAYS

4. The principal objective of the railway development programme in the First Five Year Plan was rehabilitation of overaged rolling stock and fixed assets and the removal of the major bottlenecks on certain sections of the railway network. To the extent possible, provision was also made for additional facilities keeping in view the requirements arising from development programmes in other fields. The Second Five Year Plan aimed at the completion, so far as possible, of the task of overtaking arrears of replacement and the provision of the additional facilities required to cater for the increased traffic, particularly that arising from the development of heavy industries during the plan period. The Plan also included programmes which aimed at making the railways increasingly self-sufficient in respect of their equipment by developing indigenous sources of supply. These objectives will be pursued further in the Third Plan.

5. The total freight traffic originating on the railways in the year 1950-51 was 91·4 million tons. The traffic increased to 114 million tons in 1955-56, that is, by about 25 per cent over a period of 5 years. In the Second Five Year Plan the traffic was estimated to increase to 168 million tons by 1960-61. The revised estimate of traffic likely to be offered on the railways in 1960-61 is 162 million tons, which would represent an increase of about 42 per cent during the second plan. The railway development programmes in the Third Five Year Plan are being formulated on the basis of traffic reaching about 235 million tons in 1965-66, *i.e.,* the last year of the third plan. The volume of traffic is thus expected to increase by 73 million tons or by about 45 per cent over the period of the third plan. About 70 per cent of this additional traffic will be on account of iron and steel, coal and cement and the remaining 30 per cent on account of miscellaneous goods. The estimates of traffic for the last year of the third plan are based on the following estimates of production: steel ingot 8·7 million tons, pig iron 1·5 million tons, coal 95 million tons, cement 13 million tons. The estimate for steel is exclusive of the production envisaged from the new steel plant at Bokaro. The provision for railway facilities required in connection with the Bokaro steel plant forms part of the overall allocation for the steel plant *vide* Chapter XI. As regards miscellaneous traffic, the estimate has been worked out with due regard to the targets of production of important industries like cotton textiles, sugar, jute manufactures, paper, tea, fertilizers, vegetable oils, etc. The estimate also takes into account the traffic relating to mineral oils and mineral ores. On the whole,

on the basis of the above targets, the increase during the third plan in miscellaneous traffic is estimated to be of the order of 5 per cent per annum which is the minimum to be expected in keeping with the trend shown by this type of traffic on the railways in the last few years.

6. Provision was made in the Second Plan for an increase of 3 per cent per annum in passenger transport capacity. It was anticipated that this would just meet the normal increase in traffic and that the overcrowding in passenger trains would continue. The volume of traffic in terms of passengers originating was 1275 million in 1955-56 and 1422 million in 1958-59. Thus there was an increase of 11·5 per cent in passengers originating in the first three years of the second plan. The increase in suburban traffic was of the order of 17.8 per cent and that in non-suburban traffic of 7.5 per cent over this period. For the third five year plan, a rate of increase of 3 per cent per annum has been assumed in the non-suburban passenger traffic. In regard to suburban traffic, the objective in the Third Plan is to provide the maximum possible frequency of train services during the peak periods. The expansion programmes for passenger services are not expected to relieve substantially the existing overcrowding in trains.

7. It is tentatively estimated that in addition to the proposed allocation of Rs. 890 crores for the railway development programme in the Third Plan, a sum of Rs. 330 crores will be available from the Railway Depreciation Reserve Fund for current replacement. The broad break-up as between various programmes of the total outlay of Rs. 1220 crores including expenditure from the Depreciation Reserve Fund is indicated below. This break-up is subject to review, after detailed programmes are formulated. These figures are exclusive of the provision required by the railways on account of 'Stores Suspense'.

Table 1: Provision for railway development programmes

		Rs. crores
1	rolling stock	482
2	electrification	70
3	signalling and safety works	25
4	new lines	120
5	workshops, plant and machinery	50
6	track renewals	170
7	line capacity works	228
8	bridge works	
9	other structural works	
10	other electrical works	
11	staff quarters and staff welfare	50
12	users' amenities	15
13	road services	10
14	total	1220

8. The programme for rolling stock provides for the addition in stock required to cater for the anticipated increases in traffic and also for the replacement of overaged stock as indicated below:—

Table 2: Railway rolling stock programme

	locomotives	coaching vehicles	wagons
addition	1031	4983	83169
replacement	614	2854	26697
total	1645	7837	109866

The above figures are subject to review when detailed information about the future pattern of traffic becomes known. In working out the requirements of rolling stock it has been assumed that all locomotives and wagons upto the age of 45 years and coaches upto the age of 36 years on broad gauge, 40 years on metre gauge and 45 years on narrow gauge at the end of the third plan will be retained in service. As regards the stock above these age limits, the total number to be retained in service at the end of the third plan period will be the same as the number of such overaged stock at the end of the second plan. In drawing up the rehabilitation programme, the railways have been guided by their actual experience of condemning the overaged stock on condition basis during the period of the second plan. In estimating the requirements for additional stock the operational improvements achieved and planned by the railways have been taken into account. In respect of specified bulk movements of coal and other raw materials to the steel plants, the requirements have been estimated on the basis of the minimum turn-round time of wagons. It has been assumed that 20 per cent of the additional traffic in miscellaneous goods will move in empties returning to the coalfields. The requirements of rolling stock have in this way been kept as low as possible.

9. The railway development programmes include a substantial provision for works intended to augment line capacity, *viz.*, doubling or partial doubling of the existing lines, dieselisation, electrification, and provision of crossing stations, additional loops, yard remodelling etc. In formulating programmes for development of line capacity, the railways will be taking into account the technological improvements that may be achieved in the third plan period including the use, to the extent possible, of new bogie wagons fitted with centre buffer couplers for bulk movement of coal. These programmes will be formulated in detail, as more information becomes available on

the likely future pattern of traffic on the various sections of the railways. The programmes also provide for the necessary requirements in regard to track renewal, bridge works and signalling and safety works.

10. Provision is made for the construction of 1200 miles of new lines during the plan period. In addition to the new lines carried forward from the Second to the Third Plan namely, Garhwa Road-Robertsganj, Sambalpur-Titlagarh and Bimalgarh-Kiriburu, provision is made for the following further new lines: Jhund-Kandla, Madhopur-Kathua, Udaipur-Himatnagar, Delhi avoiding lines, Diva-Panvel-Uran, Patharkandi-Dharamanagar, Guna-Maksi, Ranchi-Bondamunda, Hindumalkot-Sriganganagar, Ghaziabad-Tughlakabad, and Bailadilla-Kotavalsa. In addition, it is estimated that about 200 miles of new lines will be required in connection with the development of the coal industry in the third plan.

11. Provision has been made for the construction of 54,000 staff quarters in addition to those to be provided as part of the composite schemes relating to railway workshops and remodelling of railway yards and new lines. The detailed schemes for construction of quarters and other buildings on the railways are being drawn up with due regard to all possible economies in costs of construction.

12. In formulating the railway programme in the Third Plan the important objective of attaining self-sufficiency in regard to the requirements of the railways has continued to be kept in view. There has been a substantial increase in the capacity for the manufacture of rolling stock within the country in the second plan. To the extent possible, efforts will be made in the third plan period to manufacture diesel and electric locomotives and other items of equipment which are still being imported. The requirement of foreign exchange for the railway development programme in the Third Plan is estimated at Rs. 130 crores as against Rs. 320 crores in the Second Plan. This gives an indication of the success achieved in developing indigenous sources of supply.

ROADS

13. The long-term road development plan prepared in 1943, known commonly as "The Nagpur Plan", laid down certain broad objectives, having regard to the requirements over a period of 20 years. The Plan as adjusted in 1948 envisaged completion of a total length of 1,23,000 miles of surfaced roads and 2,08,000 miles of unsurfaced roads. With the programmes undertaken in the First and the Second

Plans the targets envisaged in the Nagpur Plan will be exceeded both in regard to surfaced and unsurfaced roads. It is estimated that by 1961 the mileage of surfaced roads in the country will be 1,44,000 and that of unsurfaced roads might be well above 2,50,000 though the road net-work will be deficient in certain respects, such as unbridged river crossings, sub-standard surface, narrow carriage-way etc. The Chief Engineers of the State and the Central Governments have recently formulated another 20-year road development plan for the period 1961-81. The broad objective of this plan is that no village in a developed and agricultural area should remain more than four miles from a metalled road and more than 1½ miles from any type of road. The plan takes into account the special requirements of undeveloped and under-developed areas. Under the plan, the total mileage proposed to be reached at the end of the 20-year period is 2,52,000 for surfaced roads and 4,05,000 for unsurfaced roads.

14. The broad order of priorities envisaged in the 20-year plan, is that (a) on all arterial routes, missing bridges should be provided and the road surfaces improved at least to one lane black topped specification, (b) the main roads in the vicinity of large towns should be widened to two lanes or more, and (c) the major arterial routes should have at least two-lane carriageway. According to the plan, the first task in regard to rural roads should be their improvement to fair weather standard. In regard to these priorities it may be emphasised that during the past 10 years there has been an increasing demand for district and village roads whose improvement benefits directly millions living in the rural areas. This demand will have to be kept in view while considering the targets for various types of roads in the Third Plan. With this reservation the priorities suggested in the new 20-year plan will serve as a general guide for formulating road development programmes in the Third Plan. It will not, however, be possible owing to limitation of resources, to add new road mileage and to undertake the development of the existing roads in the next 5 years at the rate envisaged in the 20-year-plan.

15. In formulating road development programmes in the Second Five Year Plan, special consideration was given to the needs of the areas which were comparatively backward in means of communication. Generally speaking, in the case of States like Assam, Tripura, Manipur, Himachal Pradesh, Jammu and Kashmir and Rajasthan, a relatively higher percentage of the total plan provision was allocated to roads. Provision was also made for road development in the North and North Eastern hilly regions. These programmes were assisted by grants from the Central Government. To the extent

possible, the programmes in the Third Plan also will take account of the needs of under-developed and hilly areas.

16. Considerable local road development has been carried out under the programmes of District Boards and Municipal bodies, and under Community Development and Local Works programmes in the second plan. In the Third Plan also all these programmes will include provision for road development. For some of these programmes contributions from the people are expected to be available, mainly in the form of labour.

17. The expenditure on road development in the first plan was of the order of Rs. 155 crores and it is estimated that it will be about Rs. 250 crores in the second plan. This is in addition to the expenditure incurred on local road development under the various programmes mentioned above. Over the period of the first two plans, it is expected that the mileage of all surfaced roads other than municipal roads will have increased by about 50 per cent, that is from about 98,000 in 1950-51 to about 144,000 in 1960-61. In the Third Plan, the total allotment proposed for roads for the present is Rs. 250 crores which includes the amounts likely to be available from the Central Road Fund. This figure should be considered tentative at this stage because in regard to the road programmes to be included in the State plans, final allocations will largely depend on the plans drawn up by the State Governments and the relative emphasis they may wish to give to such programmes within the limits of overall financial provisions. With an allotment of Rs. 250 crores, it may be possible to add about 20,000 miles of surfaced roads in the third plan. The mileage added under the local road development programmes will be in addition to this. The possibility of making an additional allocation for road development purposes may be considered in due course, depending upon the resources available.

ROAD TRANSPORT

18. Road transport programmes will be mainly in the private sector, but a provision of Rs. 18 crores is proposed for expansion of the nationalised road transport services which cater largely for passenger traffic. Provision is also being made in the railway plan for the railways to contribute their share to the expansion programmes of the nationalised road transport undertakings in the States. It is expected that about 5000 vehicles will be added to the fleet of nationalised undertakings during the period of the plan. As in the case of roads, the final allocation for road transport will largely depend on the provisions the State Governments are in a position to make for this purpose in the State plans.

19. Despite the expansion of nationalised road transport during the third plan a great many passenger services will continue to be provided by the private sector, while goods transport is still almost entirely in the hands of private operators. Measures were taken in recent years to liberalize licensing policies for road transport. However, on account of the shortage of foreign exchange, insufficient supply of new vehicles has stood in the way of rapid expansion of road transport during the second plan period. Notwithstanding this, the number of commercial vehicles in the country is estimated to have nearly doubled during the 10 year period 1950-51 to 1960-61, as indicated in the following table:—

Table 3: Number of commercial vehicles

(in thousands)

	buses	goods vehicles	total
1950-51	34.4	81.9	116.3
1955-56	46.5	119.1	165.6
1960-61 (estimated)	54.0	150.0	204.0

The expansion of commercial road transport in the third plan will depend largely on the manufacturing capacity of the automobile industry in the country. The targets recommended in this regard by the *ad hoc* Committee on Automobile Industry have been mentioned in the Chapter on Industries. These targets will be further considered, having regard to the recommendations of the Committee on Transport Policy and Coordination which, as stated earlier, is examining the entire policy with regard to the future development of road transport and other means of transport in the country.

SHIPPING

20. There has been a substantial addition to the shipping of the country during the first two plan periods. The total tonnage in 1950-51 was 3·91 lakh GRT and increased to 4·80 lakh GRT at the end of the first plan period. Despite foreign exchange difficulties, the target of 9 lakh GRT set for the end of the second plan is likely to be fully achieved. Indian ships are estimated at present at carry about 8 to 9 per cent of India's overseas trade. The following figures indicate the tonnage position for the coastal and the overseas trades at the end of the first and the second plan periods:—

Table 4: Shipping tonnage (in lakh GRT)

	1950-51	1955-56	1960-61 (estimated)
coastal	2.17	2.40	2.92
overseas	1.74	2.40	6.13
total	3.91	4.80	9.05

A sum of Rs. 18·7 crores was spent on the shipping programme in the first plan and the likely expenditure in the second plan is estimated at about Rs. 54 crores. An important step taken during the second plan period has been the establishment of a non-lapsing shipping development fund for grant of loans to shipping companies for the acquisition of tonnage.

21. For the Third Five Year Plan, the National Shipping Board has recommended a target of 14·2 lakh tons to be reached by 1965-66, consisting of 10·8 lakh tons for the overseas trade and 3·4 lakh tons for the coastal trade. The additional tonnage proposed to be acquired to reach this target will be 5·2 lakh GRT. The requirements for replacement of overaged ships are estimated by the Board to be of the order of 1·7 lakh GRT. The total cost of this programme is estimated at Rs. 118·8 crores. This includes Rs. 14 crores which the shipping companies are expected to provide from their own resources. For the present, it has been possible to make a provision of Rs. 55 crores for shipping in the Third Plan. In addition a sum of about Rs. 4 crores is likely to be available from the Shipping Development Fund. Corresponding to this provision, the contribution from the shipping companies is estimated at about Rs. 7 crores. Within this amount, it is expected that about 2 lakh GRT will be added after meeting the replacement requirements during the period of the plan. The bulk of the additional tonnage is proposed for the overseas trade. The development programme for shipping will depend largely on the availability of foreign aid for this purpose. The question of making an additional allotment for shipping will be considered, before the Plan is finalised.

PORTS AND HARBOURS

22. There was serious congestion at the ports in the early years of the second plan and several measures were taken to increase port capacity and to enable them to handle large-scale imports of heavy cargo required in connection with industrial projects in the second plan. These included provision of facilities for overside discharge of cargo, and installation of additional mechanical appliances. The Second Plan included certain major projects intended to provide additional berthing capacity at various ports, more particularly at Calcutta, Madras, Vizagapatam and Cochin. The total capacity of the major ports in 1950-51 was estimated to be about 20 million tons; this increased to 25 million tons in 1955-56. During 1957-58, the traffic handled at major ports touched a peak figure of 31 million tons. With the completion of projects which are already under way, the major ports are likely to achieve a total capacity of 41 million tons during the period of the third plan.

23. In the Third Plan the main objective will be to maintain and improve the existing port facilities rather than to increase port capacity. On account of the deteriorating conditions of draft in the river Hooghly, special programmes have recently been taken up at the Calcutta Port which provide for extensive training works and dredging of the difficult bars. Provision for these works will be made in the Third Plan. The proposal for the development of an ancillary port at Haldia near Calcutta is also being considered in connection with the Third Plan. The other important schemes under consideration are: the dredging of the main harbour channel and modernisation of the docks at Bombay, completion of the wet dock berths and remodelling and improvement of workshops at Madras, construction of additional berths and mechanisation of ore handling facilities at Vizagapatam and training works for the bar channel at Kandla.

24. The total expenditure on port development in the second plan is expected to be of the order of Rs. 60 crores. The allotment proposed for major and minor ports in the Third Plan is Rs. 85 crores which includes the contribution likely to be made from the Ports' own resources.

INLAND WATER TRANSPORT

25. The more important schemes for which provision was made in the Second Five Year Plan are the pilot projects undertaken by the Ganga Brahmaputra Board, improvement of the West Coast canals and development of inland port facilities at Pandu. The Joint Steamer Companies who are the principal inland water transport operators in the North East Region have in the past year drawn up a programme for the modernisation of their fleet which is over-aged and out-of-date.

26. As against the estimated expenditure of about Rs. 75 lakhs on the development of inland water transport in the second plan, the provision proposed in the Third Plan is Rs. 6 crores. The problems of inland water transport have been studied in detail recently by the Inland Water Transport Committee. The detailed programmes for the Third Plan will be drawn up having regard to the recommendations of the Committee. Some of the more important schemes which are under consideration are: hydrographic surveys of the more important rivers, purchase of dredgers for the Brahmaputra river and the Sunderbans area, project for towing country-boats in the Sunderbans, ship repair facilities in Assam, and improvement of navigation canals in some States especially Kerala and Orissa.

LIGHTHOUSES

27. The Second Plan envisaged the construction of a number of new lighthouses and the modernisation of the existing ones. Since the commencement of the second plan, it has been possible to establish 65 new lighthouses and other aids to navigation, including radio beacons, very high frequency radio transmission sets and lighted and unlighted buoys. Work on the construction and improvement of 50 lighthouses and other aids to navigation like radars, radio beacons, fog signals and lightbuoys is in progress. In addition, work is proceeding in connection with the establishment of two Decca Navigator Chains and the Lighthouse Workshop and Laboratory at Calcutta. The total expenditure on the lighthouses programme in the second plan is estimated to be of the order of Rs. 2.73 crores. A provision of Rs. 6 crores has been made for the Lighthouse Department in the Third Five Year Plan. Priority will be given to the completion of the works already undertaken in the second plan. A number of new lighthouses will be established during the third plan period.

CIVIL AIR TRANSPORT

28. There has been a rapid expansion of civil air transport and between 1953, when the air services were nationalised and 1959 the number of passengers carried increased from 4.0 lakhs to 7.2 lakhs and the miles flown from 19·2 millions to 24·9 millions. The Second Plan provided for both the modernisation and improvement of a number of existing aerodromes and for the expansion of the fleet of the two air corporations. Under the former head the more important projects undertaken were the development of Santa Cruz, Dum Dum and Palam aerodromes for the operation of jet aircraft. Of the air corporations, Indian Airlines added 10 Viscounts to their fleet and placed orders for 5 Fokker Friendship aircraft as replacements for Dakotas while Air India International obtained 5 Super constellations and placed orders for 4 Boeing jet aircraft during the second plan period.

29. A provision of Rs. 55 crores is proposed for civil air transport in the Third Five Year Plan. Of this amount, Rs. 22 to 25 crores will be made available for works relating to aerodromes and the remaining Rs. 30 to 33 crores for the two air corporations. The programmes will provide for modernisation of equipment at a number of aerodromes and development of a few new aerodromes, gliderdromes and airstrips in the country. Provision is made for the requirements of the Indian Airlines Corporation for replacement

of Dakota aircraft and those of Air India International in regard to the additional jet aircraft.

COMMUNICATIONS

30. There has been considerable expansion of communication services during the period of the first two plans. It is expected that between 1950-51 and 1960-61, the number of post offices will have increased from 36,000 to 75,000, public call offices from 338 to 2250, telegraph offices from 3600 to 6300 and telephone connections from 1,68,000 to about 4,75,000. During the third plan period, it is proposed to provide additional 20,000 post offices, 2000 telegraph offices and about 2,00,000 telephone connections. The programmes of the Telephone Department provide also for the continuance of the project for laying coaxial cables. This project is expected to modernise and improve the telephone services between the more important towns in the country. The provision of Rs. 68 crores proposed for Posts & Telegraphs in the Third Five Year Plan will be in addition to the amounts likely to be available from the Renewals Reserve Fund of the Department.

31. As a result of the efforts made in the first and the second plans, the Posts & Telegraphs Department expect to obtain a greater part of their requirements of equipment from indigenous sources, and will need only a small amount of foreign exchange for the development programme in the Third Five Year Plan.

32. A provision of Rs. 5 crores is proposed in the Third Plan for Overseas Communications Service, India Meteorological Department and Wireless Planning and Coordination. During the period of the first two plans, notable progress has been made by the Overseas Communications Service and the Department provides at present 26 wireless telegraph services, 24 radio-telephone and 12 radio-photo services. The Department also provides a number of 'leased circuit' channels for the benefit of aviation companies and business houses. In the Third Plan provision is made for further expansion of these services. It is proposed to procure additional equipment and provide for the construction of office and residential buildings.

33. In the field of meteorology during the first two plans, steps were taken to modernise important aerodrome observatories by installing storm detecting radars and other equipment. Two new observatories were established, one each at Amritsar and Veraval. The programme for the Third Plan will provide mainly for the installation of modern equipment so as to improve the technical services rendered by the Department. It is also proposed to provide additional stations with modern equipment to assist the flight of

high level jet aircraft over India. Efforts will also be made to expand the workshops and laboratories of the Department with a view to attaining a measure of self-sufficiency in regard to the equipment required by the Department.

TOURISM

34. There has been a significant increase in the number of foreign tourists visiting India in recent years. The foreign exchange earnings from tourism are estimated to have increased from Rs. 4·2 crores in 1950 to Rs. 17·5 crores in 1958. There has been a considerable expansion of internal tourism also. The programmes for the development of tourism in the Second Five Year Plan included provision for accommodation, transport and recreational facilities at important tourist centres. In view of the foreign exchange which the programme helps to earn, the schemes for developing tourism have a high priority.

BROADCASTING

35. In the field of broadcasting, considerable progress has been made during the last ten years. In the first plan, each language area was provided with at least one transmitting station bringing the total number of stations to 26 which was further raised to 28 by the end of the second plan. The aim in the second plan was to extend the available services to as wide an area as possible and to strengthen the external broadcast services. With a view to making the internal coverage more effective provision is being made in the Third Plan to expand the medium wave broadcast service and to strengthen the arrangements for pre-recording of programmes. The Third Plan also includes provision for further improvement of the external broadcast services. A small provision is being made for setting up a television service in Bombay. By the end of the second plan, the Department expects to raise the number of community listening sets in rural areas to 72,000. This programme will be carried further in the Third Plan.

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